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ABSTRACT

All five issues of volume 21 of the "Communicator," a journal concerned with giftedness in school-age children, are collected in this document. Major articles (and their authors) include the following: "Technology and Change: From the Renaissance World to Microworlds" (Gail Marshall); "Computers and Creativity: Tools, Tasks, and Possibilities" (Bernard Dodge); "Technology Resources in Education (TRIE): Opportunities for Collaboration" (Craig Blurton); "Increasing Educational Options through Distance Learning" (Robert Threlkeld); "Technology, the Gifted, and the Language Arts" (Stephen Marcus); "An Open Letter to Parents of Students" (David Moursund); "Vision: Technologically Enriched School of Tomorrow (TEST)" (Gary Bitter); "Alternatives to Integrated Instructional Systems" (Peter Kelman); "Confessions of a Maverick Moderate" (Anne Beversdorf); "The Gifted Underachiever...Another Look" (Linda Emerick); "Developing Gifted Potential in Underserved Populations" (Elinor Ruth Smith); "Difficulties in Addressing Creativity in North American Indians Living in Remote Communities" (David Rattray); "Computers in Education: A Piagetian Perspective" (Thomas O'Brien); "The Euclid Gifted/High Ability Bilingual Magnet School" (Victoria Steinitz); "The California State Summer School for the Arts and Some Thoughts on Advocacy for Arts Education" (William Cleveland); "Improving Art Education: The Getty Program" (Leilani Lattin Duke); "Five Proven Ways to Incorporate Art in Every Classroom" (Jerry Chris); "Fullerton Arts Program" (Lauralyn Eschner); "The Arts...in Garden Grove" (Jean Drum); "Conservatory of Fine Arts in the Los Angeles Unified School District" (Sheila Smith); "Pageant of the Arts: An Integrated Arts Program" (John Blaydes); "The Impossible Dream" (James Haslip); "Scholarship and the Arts: The Scholarship Programs for the Gifted and Talented at the Idyllwild School of Music and the Arts" (James Zuberbuhler); "Teaching Toward Intuition: Waldorf Schools" (Dennis Kloczek); "Show Me: Recognizing

Spatial Intelligence" (Miri Fleming and Veronica Blake); "Untangling the Web of Interdisciplinary Instruction" (Susan L. Feibelman and Sandy Hall-Chiles); "Interdisciplinary Thematic Curriculum" (Sandra Kaplan); "Introducing Theme-Based Instruction to Teachers and Parents" (Rena Bonne); "Do Concepts Still Have a Place in Teaching Social Studies?" (Dorothy Connet); "Differentiating Content for Secondary Gifted Learners" (James Curry); "Themes in Science: A One-Year Program for Grade 3" (Jacqueline Barber); "Thinking Blocks for Literature" (Stephen Marcus); "Career Development and the Gifted Student" (Rebecca Dedmond); "The Career Orientation and Planning Profile" (James Carr); "The Career: Introduction to the World of Work" (Jody Hess); "The Gifted in Search of a Career" (Mary Meeker); "A Career Awareness Unit for Sixth Grade GATE Students" (Mary Ann Price); "Gifted Students are at Risk Too" (Gail Hanninen et al.); "Career Planning for Gifted and Talented Youth" (Barbara Kerr and Connie Belin); "The Oregon Model" (Jody Hess); "Professional Apprenticeship Provides Career Experience for Gifted Students" (Patrick Bernick and Juanita Felton); "Sixth Graders Transform Art into Billboards and Exhibit their Art in the Community" (Dianne Turner); "'Restructuring' Produces a Powerful GATE Program" (Nancy Howard). (DB)

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COMMUNICATOR

TEACHING WITH TECHNOLOGY

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Technology and Change: From the Renaissance World to Microworlds

by Gail Marshall

Imagine living in Rome while the Sistine Chapel was being built. Think about the excitement Englishmen felt as inventions, large and small, one after the other emerged from the workrooms and small factories dotted all over the English countryside. Biographies of writers and poets of the 1920's tell us about the daily excitement they felt as they pioneered new styles. Major revolutions, not just the political ones but the social, intellectual and technological ones as well, are exciting. They stimulate and challenge. But they also confuse and frustrate people. They exacerbate old tensions and induce new headaches. To cope with change we must accommodate between patterns of the past and new ideas and tools. When Newton wrote about a new vision of the physical universe, the solitary Englishmen, who tinkered and pattered with the primitive equipment they used in daily life, saw immediate, practical applications of Newton's laws that could improve productivity. But others saw a threat to the stability of their daily lives. When renaissance artists thought about immortality, they saw saints and angels that looked like men and women walking the streets of Rome, or Siena, or Florence. No more shadowy angelic clouds for the fifteenth and sixteenth century artists. For them the revolution in man's thinking about his relationship to the deity inspired visions of immortal man as mortal man made more splendid. But that change aroused uncertainties about man's place in the world and his security in the universe. And when World War I de-

stroyed peoples' hopes for a calm, ordered society, the writers of the 20's responded with stories and poems that mirrored the dislocation. Sometimes the stories were more unsettling than the debacle in the trenches of France!

Painting the Sistine Chapel ceiling involved more than a vision of what the afterlife looked like. Technology, in the form of ropes, scaffolds, pulleys, a visual geometry of shapes and planes, brought Michelangelo's private vision into public purview. To turn Newton's vision of a physical universe into a series of productive inventions the nuts and bolts (literally!) of production were needed. The dreamy English countryside was punctuated by bursts of steam and screeches of turbines. Slag and soot were as much a by-product of invention as speed. But Michelangelo, Newton, and the host of artists, writers and inventors, who transformed our world, and our view of the world, focused on the goal—to produce exciting, rewarding, ennobling creations. The machinery, all the bits of wood and glass and metal, were not ends, but means to those splendid ends, the David statue in Florence, the steam engine, *The Waste Land*.

Change produces confusion and despair. Think about being a visitor to Rome and not understanding the citizens' references to space, color and line! Think of the frustration of being in eighteenth century England and not understanding all the talk of gravity and acceleration. As change occurs, keeping up with change is essential or we feel a sense of alienation, of distance. As difficult as it is to master the vo-

Continued on page 32



GUEST EDITORIAL

by Marge Hctor

Two of the challenges parents and educators of gifted students have faced is to find ways to help them to be critical thinkers and problem solvers and to provide them with activities which challenge and develop their higher-order thinking skills.

Although there is not one sure way to meet this challenge - no panacea - technology, a relatively new tool at our disposal, can provide much welcome assistance. Computers, instructional television and laserdiscs can open avenues which make it easier for us to offer enriched learning experiences to our students. Appropriate programs such as word processing, database, and spreadsheets are tools which allow students to go beyond the mechanical and tackle computer problem solving. Simulations, critical thinking software, and others provide quality exercises in problem solving.

Students of today can simulate a complex chemical experiment, take a wagon train trip to Oregon across the Overland Trail, or dissect a frog. The use of the computer as an information retrieval system, and as a companion to a laserdisc player will allow our students to research and create high-quality presentations of complex ideas and information.

As we enter the technological age, it is essential that students become computer literate and proficient with hardware and software. In addition, optimal use of technology will allow us to provide our students with experiences unavailable to them until now.

Computers will never replace the teacher. I advise the teachers I work with to use the computer to provide experiences that otherwise couldn't be duplicated in the classroom. When something can be better done without the use of a computer, it should be done that way. But technology has advanced to the point that many real-life experiences can be simulated by and provided by the computer in the classroom. We are obligated to make these experiences available to our students.

Marge Hctor, Supervisor of Media and Technology Services for Garden Grove Unified School District, was Guest Editor for this issue of the Communicator. Marge, Board member and chair of the Outreach Committee for CAG, relied on her many friends and associates around the state and the country to write the articles you will find within. We are indeed fortunate to have had the benefit of Marge's efforts, and appreciate her willingness to set the standard for excellence.

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PRESIDENT'S COLUMN



Sandra Kaplan

Current trends in general education appear to parallel many of the elements that traditionally have been related to a differentiated curriculum for the gifted. These include the development of productive thinking skills and the integration of disciplines into the study of a topic or theme. Many educators view positively this parallel between the general and differentiated curriculum. However, some educators perceive the similarity of these elements as potentially eroding the concept of a differentiated curriculum for the gifted.

Regardless of the point of view educators hold, two issues appear pertinent to the parallel between the general and differentiated curricula. First, the distinctiveness of a curriculum defined as differentiated for the gifted is less a matter of the elements included within such a curriculum and more a consequence of the gifted students' interaction with the curriculum. No single element within a curriculum ever could be intended for only one segment of the student population. It is when and how such elements of a curriculum are taught that determines their appropriateness for gifted students.

Second, a quality program for the gifted is one that spills over and affects the education for all students. One measure of a successful gifted program is the degree to which it has had an impact on general education. It appears that the current focus in general education on the elements usually appearing in curriculum for the gifted could be interpreted as meaning that gifted education has contributed to the betterment of education for all students.

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THE VIEW FROM SACRAMENTO

by Barbara Brandes

The view from Sacramento these days combines a relatively hopeful political climate with a worrisome fiscal forecast, at least for the near term. Governor Pete Wilson has demonstrated an encouraging interest in working collaboratively with the Legislature, with Superintendent Honig, and with educators generally in improving the quality of schooling in California and in making "prevention" rather than "remediation" the hallmark of our approach to education and to social services. However, bringing these ideas to fruition costs money. We will probably have to wait out the current rather dismal fiscal situation in the state before we see the results of these new approaches.

As you know, each year the state budget for the following fiscal year is shaped through a series of negotiations that take place between January and (hopefully) the end of June. The process begins when the "Governor's Budget" is released in January and serves as a starting point for the arduous process of developing a final budget. This budget proposal gets revised in light of changes in state revenue projections, any new legislation that may augment the budget, and, finally, the Governor's "blue pencil," which can reduce or eliminate allocations before the budget becomes law in the "Budget Act."

We were encouraged to see that the Governor's Budget proposed for 1991-92 contains an augmentation for GATE. This augmentation includes \$1.3 million to provide statutory growth funding for GATE and \$2 million to fully fund new GATE districts. Of course we cannot be sure that these funds will remain in the final version of the budget, especially if the fiscal projections for the state become bleaker. However, the fact that these funds are in the budget proposal is a hopeful sign. Of course, we had expected and hoped for full funding of new GATE districts last year. It is disappointing to see that there are no cost-of-living adjustments (COLA's) for GATE or other programs in the Governor's Budget.

The outlook for funding in the California Department of Education (CDE) remains grim. The Department has eliminated more than 80 positions over the past several months and drastically curtailed expenditures for travel and other activities. We in the GATE unit, as in other units throughout the Department, are frustrated over our inability to provide the assistance and support that is needed. We do feel fortunate, however, that we are able to provide a staff development opportunity for GATE staff and for other education professionals through our Jacob Javits grant. We are now midway through the first year of "Building and Coalition for Excellence: Project Open-GATE" and are gratified that many of you have had the chance to participate in the teleconferences and related staff development activities. Next year the project will have a much more in-depth focus on curriculum and instructional strategies that nurture the gifts and talents in our young people.

Computers and Creativity: Tools, Tasks, and Possibilities

by Bernard J. Dodge

Over twenty years ago in *Education and Ecstasy* George Leonard sketched his vision of a school in the year 2001. He described two parents visiting their three year old in a room filled with computer terminals which controlled a single screen wrapped around the walls. Their daughter was engrossed in a lesson on word play, in which she learned conventional spelling by creating alternate spellings for words like *cat* and *tiger*. To her right, a girl studied primitive cultures while to her left a six year old explored simple calculus. As the program prodded and encouraged her, animated images of cats and tigers appeared over her station, at times interacting with the pygmy blow darts of the girl to the right and the wheels in motion of the lesson to her left. The classroom Leonard described was lively and intense, individualized and social, structured and surprising. With 2001 only ten years away, how close are we to having such an environment? How can we use computers today to enhance creativity?

Creativity has been defined in a number of overlapping ways. According to Warren (1985), creativity is "... a process of freedom operating within structure aimed at a problem or opportunity for expression... Creativity is not necessarily exotic or dramatic. Most people experience it, sometimes without thinking of it as creativity." Most definitions include three major components: that creativity has a *product*, and that the product is both *original* and *appropriate*, or *novel* and *valuable*. The original-

ity-appropriateness distinction is a useful one. As one paper put it, "Appropriateness without originality is mundane, and originality without appropriateness is simply bizarre." (Costa, Miller & Quinby, 1985). Of course we don't expect students of school age to generate work that is important to society and that has never been seen before. It is sufficient that the product be appropriate to the given task and original within the limited experience of the learner.

The process of creativity is inherently engaging and self-rewarding. Csikszentmihalyi (1988) discusses his concept of *flow*, which is the total involvement we feel when meeting challenges which match our skills. The creative process is a series of challenges faced and conquered, ranging from large ones (defining a character in a play) to small (choosing just the right word to finish a sentence). There are degrees of creativity in almost everything we do, at least potentially. The task for teachers is to establish an environment in which greater creativity is nurtured. Computers can help.

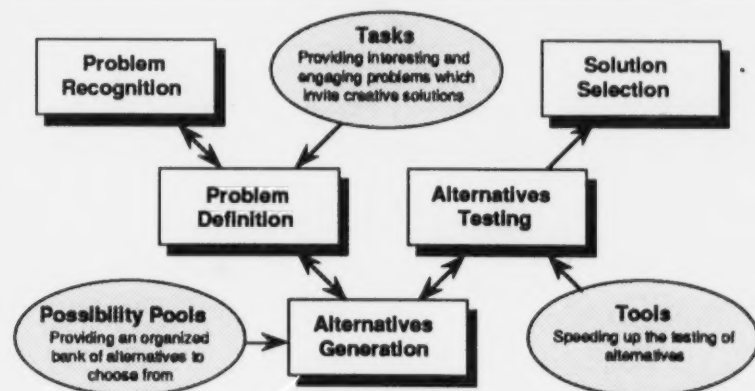
Computing Creatively

How are computers and creativity related? Not all of the requirements to establish an environment for creative work are achievable through the use of computers. Instituting an atmosphere of having freedom to fail, and of valuing originality - these are roles for the teacher that are not tightly related to technology. On the other hand, several aspects of creativity lend themselves quite well to classroom computing. These include:

- Flexibility, mobility - the ability to shift perspectives... to redefine a problem in the direction of greater or lesser abstractness.
- Fluency - the ability to generate many ideas, knowing that only a few will be valuable.
- Association - the ability to put disparate elements together to make new combinations.
- Testing - the ability to quickly try out ideas, discarding those that don't work.

Figure 1 shows a widely used model of the creative problem solving process. Overlaid on

Figure 1. Where computers enhance the creative process



the model are three additional terms describing how computers are used to practice and enhance creativity. Computers can be used:

- 1) as a *tool* for creativity;
- 2) to present a *task* or stimulus for creative activity; and
- 3) as a *possibility pool* to be used to support creativity.

In his Multiple Intelligences Theory, Howard Gardner (1983) has proposed that intelligence is not a single dimension, but rather that it is developed in varying degrees in at least seven categories: linguistic, musical, logical-mathematical, spatial, bodily-kinesthetic, interpersonal, and self-knowing. Computer use lends itself easily to the first four of these multiple intelligences. According to Gardner, for any given individual, highly developed originality occurs principally within a single domain (1983, page 288). Thus it makes sense to analyze creative computer uses within the domains of Gardner's theory as well as across the proposed categories of tools, tasks, and possibilities.

Tools

Twenty-five years ago, using a computer usually meant filling out a coding sheet with lines of programming, handing it to someone

who would keypunch it on cards, waiting for the cards to be submitted to the computer and for sheets of output to return. The lag between trying an idea and seeing the results would be hours, if not days. The principal way in which computers today aid creativity is by speeding up the process of trying out ideas (Rasch, 1988). The term *ideas* in this context can refer to words, images, sounds, and mathematical relationships. In the domain of visual creativity, for example, appropriate tools include graphics, animation, and desktop publishing software (Hamilton, 1987). For musical creativity, a wide range of software is available for sequencing, scoring, and performing (Upitis, 1989).

One class of software that is particularly useful as a creativity tool is the outliner or idea processor. Software such as *Acta* or *Inspiration* allows one to generate many ideas and quickly organize them in hierarchies of detail. This process enables one to invent concepts by seeing which ideas hang together, and to invent procedures by organizing activities in the optimal order. These concepts and procedures are tested quickly and irrelevant ideas are easily weeded out.

Tasks

Computers are inherently engaging, especially to school-age learners, and can be well used to present a task that invites creativity. Such tasks strike a balance between constraint and open-endedness. They are structured enough to give the learner an interesting starting point and a clear idea of the expected product, and open-ended enough to suggest multiple alternative paths (Gehlbach, 1987).

An example of this use of computers is a story starter in interactive fiction software such as *HyperStories* (Lange & Dodge, 1991). In this case, the first few pages of a story are given up to the point of a branching decision. The learner is invited to write what happens next in the story after a branch is taken, and to continue the story through multiple strands to multiple conclusions. The task, though very open-ended, is constrained by the need to maintain logic and consistency of tone and character.

Possibilities

Ordinarily, creativity requires the learner to generate alternatives from memory. Possibility pools support the creative process by providing a set of alternatives. The task be-

Table 1. Computer uses across four domains of intelligence

Intelligence Domain	Computer Use			
	Tasks	Possibility Pools	Tools	
	Linguistic	Writing prompts, story starters	Thesaurus, IdeaFisher, Plot Machine, rhyming dictionary	Word processing, HyperStories, outliners, hypermedia
	Musical	Unfinished score, song to be re-orchestrated	Libraries of MIDI files, digitized sounds	Sequencers, synthesizers, samplers, scoring software, hypermedia
	Logical-Mathematical	Unfinished programs, incomplete templates	Subroutine libraries	Spreadsheets, Geometry Supposer, LOGO and other programming environments, Stella II simulation system, hypermedia
	Spatial		Clip art collections, Libraries of sample page layouts	Painting and drawing programs, animation tools, CAD software, desktop publishing, hypermedia

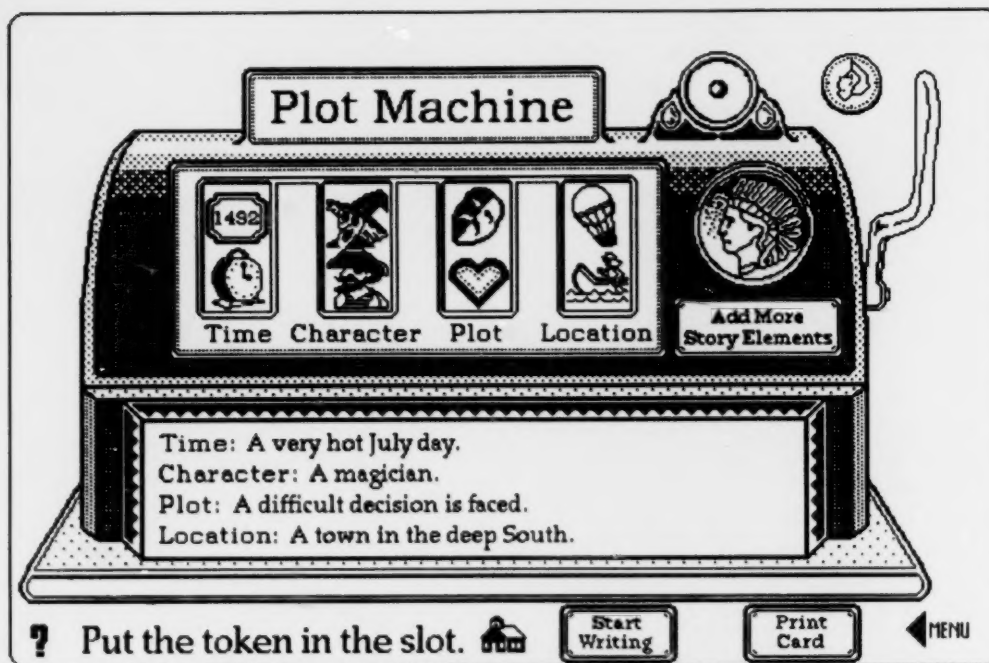


Figure 2. An example of a possibility pool

comes one of choosing from among given alternatives rather than generating them from scratch – a much easier undertaking.

Examples of possibility pools include collections of clip art and digitized sounds and music. For the creation of text, a thesaurus is a possibility pool. To some extent, possibility pools serve a compensatory function, providing images for verbal thinkers and words for visual thinkers. Possibility pools come into use after the problem or task has been at least tentatively defined, and alternative solutions are needed. Possibility pools are often very task specific, such as the rhyming dictionary included in *Michael Newman's Poetry Processor*, which also serves as a tool for trying and revising poetry.

IdeaFisher is a twenty-five megabyte pool of concepts that are linked together in our culture and common experience. In looking up the concept "red", for example, *IdeaFisher* would show related concepts such as "chapped hands," "Red Skelton," "Communist," and "caboose." Giving students access to this pool has been shown to result in the production of more ideas (Watson, 1989). In the hands of an inventive teacher, software of this sort has great potential for helping students to cast their nets more widely in the search for new ideas, particularly in the linguistic domain.

Another example is *Plot Machine*, which randomly generates combinations of story elements (Figure 2). Students can repeatedly pull the handle on the machine until an alternative comes up which seems to fit the problem. As with many examples, this software could fit into more than one category, depending on how it is used. It could be used at the outset of the creative process to generate a task. If the wheels of the machine were stocked with a narrower range of possibilities it could serve as a possibility pool for subplots

within a given story. Finally, if the task for a class were to create their own possibility pool for a wide range of stories, *Plot Machine* would qualify as a tool for this activity.

Using simple database management software or hypermedia tools like *HyperCard*, teachers (and students) can put together possibility pools to support the creative process. For example, data bases of writing topics, character descriptions, famous quotations, or physical attributes can be developed. Putting such information in computer form makes it possible to access it quickly and to put disparate elements side by side to suggest new combinations. The larger the number of items in a pool, the more useful it is likely to be.

Conclusion

Computers as tools provide the ideal environment for performing creatively for those who have already mastered a particular domain: skilled writers, gifted artists, etc. Such performers no longer need a stimulus; they find or invent their own challenges. Having mastered a craft, they are less dependent on possibility pools as a source of ideas. The ideal environment for *developing* creativity, on the other hand, includes all three components: tasks, possibility pools, and tools.

The near future is likely to bring us new

forms of creativity-oriented environments. Among these will be intelligent simulation software (Schank & Farrell, 1988) and intelligent mirror software (Schwartz, 1989) of which the *Geometry Supposer* series is a prototype. As more networks of computers are established in schools, software will be developed to allow groups of learners to interact creatively in real time. Writing labs exist in which students communicate with each other via computer and use that as a starting point for writing activities. These provide just a hint of what is to come. Most of the *Education and Ecstasy* vision of a school classroom of the year 2001 will have arrived before the decade is out. There's no need to wait for the millennium, though, as today's technology gives us many things to try.

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What we know here is very little,
but what we are ignorant of
is immense.

Laplace

Technology Resources In Education (TRIE): Opportunities for Collaboration

by Craig Blurton

Hi, my name is Steven Smith and I'm looking for a pen-pal. I'm 10 years old, in the fourth grade and in the gifted program. I like to play soccer and basketball. I program computers and have a Guinea Pig. I would like to meet someone who has the same interests as me and wants to find a pen-pal. When writing to me, please use the subject, "to Steve" so I'll know the letter is for me.

The above message, unremarkable though it may seem, is actually representative of a remarkable new use of technology in education. "Steven" sent this message January 1, 1991, from Pittsburgh, Pennsylvania, by means of electronic mail to a "list server" on an electronic highway known as the Internet. From the list server, Steven's message can be read and responded to by students and teachers across America, in Australia, New Zealand, Europe, and parts of Asia including Japan. Electronic communications is breaking down the physical barriers that separate our students from the rest of the world.

The California Technology Project (CTP) is offering, free of charge, similar opportunities to California educators and students on its Technology Resources In Education (TRIE) electronic information service. California students can exchange information, thoughts, and ideas with other students throughout California, as well as with students in other states and countries. California teachers can use the CTP's services to exchange curriculum materials, participate in professional computer conferences, and access important databanks of information.

Examples of Educational Activities

A few examples may serve to demonstrate how these services might be of use to you and your students:

- Bonnie Price, a teacher in Alhambra, is coordinating an exchange of personal and cultural information between students in Southern California and students in Sao Paulo, Brazil.
- Steven Pinney, a teacher in Orange County, is directing a project named "Kids2Kids."

Steven's project involves students in Northern and Southern California who are writing (to the CAPP objectives) and sharing their efforts, via electronic mail, with each other. They cooperatively publish a newsletter of their writings.

- Yvonne Andres, a teacher in Oceanside, is coordinating "Kids Connection," a project in which teachers and students throughout California are using electronic mail to share information pertinent to their social studies curriculum.
- Don Penland, in Sacramento, is keeping rural science teachers in touch and informed of developments in their field using electronic mail and computer conferencing. His project is titled "Science In Rural California (SIRC)."

In addition to these examples of existing projects, there are many other efforts underway. For example, a project has begun to electronically connect students and teachers in Boston, Detroit, Washington D.C., and Los Angeles as part of the Los Angeles County "Star Schools" federal grant. This grant provides mathematics and science instruction to inner city students by means of satellite broadcasting. The CTP will make it possible for these individuals to use electronic mail and computer conferencing to carry on a dialogue beyond the broadcasts. Teachers involved in the middle schools reform effort, with the assistance of the CTP, will have direct electronic access to the California Department of Education's Office of Middle Grades staff to exchange information, successful practices, and model curriculum materials. Students and teachers in 10 countries may be part of an international telecommunications exchange sponsored by the America's Cup Organizing Committee.

The California Technology Project (CTP)

To understand the TRIE electronic services, a bit of background information is necessary. The CTP is a cooperative effort of the California State University system and the California Department of Education. Funded by the

Educational Technology Local Assistance Program (AB1470), the CTP has three major functions—information collection, information dissemination, and staff development.

To fulfill the first function, information collection, the CTP conducts survey research to establish how technology is currently being used in California's schools. The results of this research is available from the CTP office in Seal Beach and from the CTP Assessment Team at CSU Chico.

To fulfill the second function, information dissemination, the CTP shares information about educational technology statewide by both print and electronic media. The CTP publishes a journal, the *CTP Quarterly*, and various brochures, reports, and pamphlets. The CTP also produces three satellite broadcasts annually for California educators, each titled "The CTP Educational Technology Update." As part of its information dissemination efforts, the CTP also operates the Technology Resources In Education (TRIE) electronic information service which is the focus of this article.

To fulfill its third major function, staff development, the CTP coordinates the work of 14 regional staff development consortia. These consortia, comprised of representatives from county offices of education, school districts, institutions of higher education, and business and industry, meet regularly to plan and conduct technology-focused staff development activities for teachers and administrators in their regions.

The Technology

Without going into too much technical detail, the TRIE electronic information service is available on CSUNet. CSUNet is an electronic network that connects the 20 CSU campuses, the CSU Chancellor's Office in Long Beach and the South Western Regional Laboratory (SWRL) facility in Seal Beach. Think of it as a "highway" over which flows information. Each of these locations have public access telephone numbers so that educators may, using a personal computer, modem, and appropriate telecommunications software, connect with CSUNet and then TRIE.

TRIE, the electronic service provided by the CTP, is located on a "host" computer at SWRL in Seal Beach. If CSUNet can be thought of as a highway, then TRIE is but one possible stop on the highway. Many other computers ("stops") are also on the CSUNet highway, but

most are restricted to use by CSU faculty and students. There is no charge for accessing either CSUNet or TRIE.

CSUNet is also connected to the Internet. The Internet is a collection of interconnected computer networks that span the globe. It is estimated (because nobody knows for certain) that over 100,000 computers are on the Internet (not including individual workstations that can access the network through their local "node") and that over 500,000 people make use of the Internet daily.

Although the local and regional networks that comprise the Internet were originally developed for the use of the military, government, and academia, there is a movement afoot to expand and improve the network and to create a national kindergarten through higher education electronic information highway. Sponsored by the National Science Foundation, this effort has tentatively been named the National Research and Education Network (NREN).

In California, the California Technology Project (CTP) is taking leadership responsibility for bringing K-12 educators and students free electronic information services. TRIE is our major effort and includes, as mentioned earlier, electronic mail, computer conferencing, bulletin boards, and on-line databases.

Opportunities for Collaboration

So, how might you as a teacher of the gifted and talented make use of TRIE? Here are but a few suggestions:

- Using electronic mail, your students could exchange information relevant to their educational needs with students in other parts of California, other states, and other countries.
- Using electronic mail and computer conferencing, you could exchange ideas and materials with teachers of the gifted and talented in other parts of California, other states, and other countries.
- Using electronic mail and computer conferencing, you can communicate directly with staff at the California Department of Education's Office of Special Programs: Gifted and Talented Education to exchange ideas and materials or ask questions about educational policy.
- Using the bulletin board section of TRIE, you can access information about educational programs and policy posted by the

California Department of Education, and other organizations.

- Using the databases on TRIE, you can search for appropriate software and videotape materials to support instruction in your classroom, or search the Melvyl system to locate a book at a University of California campus near you. The CTP will be making the ERIC database available on-line this year.
- Using electronic mail, your students can communicate with a university professor who specializes in a topic they are studying.

What Do I Do To Get Started?

To make use of the services on TRIE, you will need to have a personal computer, modem, and telecommunications software. If you have these items, and previous experience with telecommunications (or an adventurous spirit), follow the directions below to connect with TRIE:

1. Set your modem to 7-1-E.
2. Dial into the nearest public access port (the numbers are listed at the end of this article).
3. After receiving a message like "1200 Baud access" press return.
4. At the "PAD>" prompt, enter "c.swrl/33" (in lower case letters and without the quotation marks) and press return.
5. At the "login:" prompt enter "ctp" (in lower case letters and without the quotation marks) and press return.
6. At the "Main Menu," follow the directions to request an account.

Your password will be mailed to you within 3-5 working days, after which you will be able to access all of the TRIE services.

Although TRIE has been designed to be as simple to use as possible, you may need some instruction and support in accessing the network. The CTP consortia offer telecommunications workshops to educators. In addition, the CTP office in Seal Beach offers help during regular working hours. For a list of the consortia and their telephone numbers or to request help accessing TRIE call the CTP office at 1-800-272-TRIE or 213/985-9631.

Other Opportunities

The CTP has a number of existing projects that you may wish to become involved in on TRIE. Beyond these projects, the CTP is interested in working with educators who wish to create and moderate new computer confer-

ences, and who wish to start new exchange programs between students in diverse geographical locations. If you have previous experience with telecommunications, and would like to take a leadership role in promoting the uses of telecommunications in support of the education of gifted and talented students, send an E-mail message to "cblurton" on TRIE. Please describe your background, current interests, and ideas for making use of telecommunications with gifted and talented students and teachers.

CSUNet Public Access Telephone Numbers:

Chancellor's Office	213/590-5254
SWRL	213/985-9540
Bakersfield	805/664-0551
Chico	916/894-3033
Dominguez Hills	213/769-1892
Fresno	209/278-7366
Fullerton	714/526-0334
Hayward	415/727-1841
Humboldt	707/822-6205
Long Beach	213/494-1213
Los Angeles	213/225-6028
Northridge	818/701-0478
Pomona	714/595-3779
Sacramento	916/737-0955
San Bernardino	714/880-8833
San Diego	619/594-6309
San Francisco	415/333-1077
San Jose	409/924-1054
San Luis Obispo	805/549-9721
Sonoma	707/664-8093
Stanislaus	209/632-7522

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Dr. Blurton may be reached at "cblurton" on TRIE, "cblurton@atl.calstate.edu" on the Internet, at "K1797" on AppleLink, at "76656,1533" on CompuServe, or by U.S. Mail at P.O. Box 3842, Seal Beach, CA 90740-7842.

Wherever they burn books
they will also, in the end,
burn human beings
Heinrich Heine

Increasing Educational Options through Distance Learning

by Robert Threlkeld

In early December, 1990, the Los Angeles Times reported that the 1970's population boom in rural America was over. Preliminary U.S. census figures showed that more than half of the nation's rural counties had lost population in the last decade, continuing a downward trend that began at the turn of the century. While California's 27 rural counties did not lose residents, no substantial growth occurred.

Rural Californians concerned about public schools didn't need to wait for the numbers. Difficult economic times and a declining tax base coupled with teacher shortages and rising school costs persist in making quality education tough to achieve in sparsely populated regions. Often parents and administrators are disheartened about the prospects of bright high school graduates who enroll in the state's premier universities, knowing that the students have not had the breadth of courses needed to succeed.

However, the use of communication technologies can offer some assistance to rural schools. Grouped loosely under the term "distance learning," various technologies can bring small groups of students together to form classrooms without walls, allowing a single teacher to reach students simultaneously at several sites.

Satellites and Telephone Lines

There are two major communication transmission technologies utilized in distance learning: satellite broadcasting and land-based telephone or microwave networks. For most educators, as well as the public at large, the term distance learning is synonymous with "satellite." Visions of the space shuttle, extra terrestrial vehicles, and global communications have caught the public's attention. Now a charismatic instructor can teach German to 2,000 high school students, reaching schools which are tucked into remote nooks and crannies in rural America.

The satellite business is enormously seductive for distance learning producers. Although the initial hardware and ongoing transmission costs are high, once paid, trans-

missions can go anywhere. Satellite broadcasts to five students are the same as to five thousand. Marshall McLuhan's global village has become a reality.

The satellite distance learning phenomenon is off to a quick start. The Texas-based TIIN Network and Oklahoma State's ASTS broadcast sophisticated interactive high school classes to students around the country. Several dozen California schools subscribe to these services. Students do well, and seem to like the experience of a satellite television teacher. Other small regional or statewide systems, using a mix of satellite and other technologies, are springing up in places like Missouri, Oregon, Virginia, and Iowa. Injections of capital from the 1988 Star Schools legislation have helped to support these systems. In the second round of Star Schools funds, Los Angeles County's Office of Education recently received several million dollars to provide by satellite a wide variety of programs to schools throughout California and the nation.

While the public has focused on satellite instructors reaching students in many states, some of the most intriguing developments in distance learning have been occurring in rural areas, particularly in the Midwest. The most pervasive communication network in the United States remains the telephone system. Telephone lines are everywhere and have been used for years for distance education. Also, realizing the potential volume of usage, the various telephone companies are now showing strong interest in increased educational usage of their networks.

Conference call-type educational networks have been used for instruction for at least 30 years, and still serve a large share of the distance-learning population. Until recently, because of the limited bandwidth of phone lines, only audio or rudimentary graphics could be transmitted over the network. While sound and still graphics are perfectly adequate for most types of instruction, students want video, and preferably two-way video.

Developments in fiber optics and a technology known as "video compression" have

Editor's Note: Though Dr. Threlkeld's article deals primarily with distance learning for rural areas, the same concept applies anywhere there may be a scarcity of teachers or a low density of students. Thus, diverse and esoteric course options may be offered to small numbers of academically talented students through distance learning in urban, suburban, or rural settings.

increased the capabilities of the telephone network, and are providing an alternative to satellites. In most instances, neither of these technologies are currently cost competitive with satellites. However, as opposed to satellite technology, costs for both video compression and fiber optics continue to decline.

Exemplary land-based distance learning programs

The Oklahoma panhandle is one of the nation's most rural regions, characterized by large land areas and few people. Beaver County has four school districts within a 1200 square-mile area. The total student population in the county is about 1100. The educational problems of the county are typical of those described by Dede (1989): "problems of scale (not enough students in a single location) and rarity (an instructional specialty not locally available)."

In 1988 these districts began to supplement their curriculum with courses transmitted over a two-way video fiber optic network. The network was created through a cooperative effort of the school districts and the local co-op telephone company. The total start-up cost of the system was \$340,000. During its first year of operation, the network offered four courses, each originating from one of the network schools and shared by all others.

In September, 1989, California State University at Bakersfield began a similar pilot program of transmitting two-way video, voice, and data to Tehachapi High School, located in the mountains 50 miles south of the University. The University delivers undergraduate courses to advanced high school students through a special fee-waiver program.

According to the University (Taylor, Sanford and Brynjulson, 1990), the program is being well received by the students. Interestingly, these authors believe that students are more comfortable with telephone-based technology than with any other medium. Also, they appreciate that the classes provide for two-way interaction between students and instructors.

The Bakersfield project was funded through a series of grants from Pacific Bell and other sources. Video is transmitted over special high-capacity telephone lines, using state-of-the-art video compression devices. Although not currently cost effective, this model demonstrates an effective public-private partnership to meet educational needs created by isolation and

distance.

What makes these examples particularly attractive is their use of local educational resources. The teacher of record and the acknowledged "expert" are within the region, no more than 50 miles away. In addition, the limited number of sites, the two-way video, and small class sizes assure that the educational experience is personal and involving. Television in this instance is not a mass medium, but a tool to allow a teacher to be in several places at once. As Roberts (1989) notes, these networks "offer a way to expand resources for the districts yet maintain local control of curriculum, assure high-quality instruction, and keep the local school/community identity intact."

Research results on distance learning are quite encouraging. Historically, studies have shown that the type of educational medium (including face-to-face instruction) has little effect on learning outcomes. If there are any differences, distant students seem to outperform their on-campus counterparts. What does seem to matter more than media is the quality of the instruction and student motivation. A good summary of comparative research is cited at the end of this article.

What does this all mean for rural California schools? For regions where the sharing of local instructors is viable, there is some likelihood that technology-based consortia could be created. Karen and Will Kitchen (1988) provide a detailed look at local cooperative planning. While the costs for regional networks are dependent on each specific location, local telephone companies (including Pacific Bell and GTE) seem quite amenable to discussing options. Although California has limited experience in telephone-based regional networks, a number of Midwestern states (Minnesota, Iowa, Kansas) have been involved in this form of distance learning for years.

Where can one find out about distance learning opportunities? The Los Angeles-based instructional television agency, RETAC, acts as a distance learning informational source in the state and can provide help in connecting with satellite programs. A number of useful publications have recently appeared. Listed at the end of this article, these can act as primers to parents and administrators who want to consider distance learning at their schools.

In sum, rural living need not mean a constricted, second-class education. Rural students who have taken German over satellite often

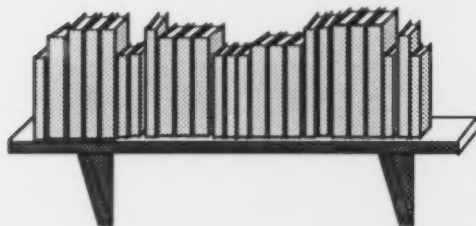
score very high on college entry exams. Physics is now being taught in tiny schools which had previously dropped the course because no teachers were available. Small school districts are sharing one skilled teacher with other districts, generating workable class sizes. Distance learning can help provide equality in education, regardless of where a student lives.

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- * Useful general publications on distance learning.

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THE BOOKSHELF



Light Bright, A Bright Idea for Bright Minds in the Primary Grades

Joyce L. Martin
Portside Publishing Company
P.O. Box 251
Port Angeles, WA 98362

This is a delightful spiral bound book of "activity centered" ideas for primary grades. The book is divided into three focal areas. The first is exploratory baskets. These are activities which can be built in baskets or tubs for "center" organization. The activities cover a wide range of subject areas and concentrate on higher-level thinking skills à la Bloom. Suggestions for time, space, and teacher management are well thought out and practical. Generic forms are provided which would make the program easy to apply.

Reviewed by Pennie
Saletta, Mount Shasta
Region Educator
Representative, GATE
Coordinator Happy
Valley and Pacheco USD

The creative teaching section is a sample resource notebook utilizing the "volunteer teacher." The section is a resource and record keeping system for building parent volunteers and their skills into the organizational format of a GATE program. While theme or content may overlap the "basket activity" portion of the program, this section of the book is intended to assist teachers in providing another opportunity for their students to interact with volunteer teachers.

The final phase of the Light Bright program deals with broadening the volunteer base by using mentors and community resources.

The format presented in this book would help a classroom teacher with a cluster of GATE students build a thinking skills program around centers, and utilize parent and community mentors. It is an excellent organizational tool with enough "start-up ideas" to get a program started.

For teachers with a program in place already, there are sufficient ideas, useful forms, and reference lists to make this a useful addition to their GATE library.

Technology, the Gifted, and the Language Arts

by Stephen Marcus

Computers give students new powers and incentives. By allowing the creation of "documents" that combine text with sound, animation, graphics, and video, the technology expands students' opportunities to become information artists, architects of knowledge. And knowledge, we're reminded by computer-graphics specialist Aaron Marcus, "is know-business, and in know-business, there's no business like *show business*." Multimedia technologies, including laser video and CD ROM discs, provide extraordinary opportunities for students to show what they know — and feel. The expressive repertoire of students is enormously enriched by these high-tech resources, which add new and wonderful dimensions to the term "language arts."

For gifted students and their teachers, the somewhat dizzying array of new technologies can produce a kind of techno-vertigo, drawing us all into a whirling world that hardly seems to stay defined long enough for us to master the basics, let alone the whistles and bells that keep getting added to that with which we've struggled to become familiar. And to make matters even more confusing, by the time the technology really works, suggests UC Irvine's Al Bork, it's obsolete.

That's the bad news. The good news is that successful teachers have provided numerous models for using technology to support and enrich traditional instructional goals and for rethinking the means for achieving those goals. I might also mention here the Hanlon-Campbell Law of Program Design (see the discussion of The Grapevine Project, below), which states: "Given more than one attractive alternative, choose them all." We really do have an embarrassment of riches, so let's make the most of them.

In addition, while hardware and software are clearly major concerns here, it's the "neural wetware" (our brains) that is the primary resource. The "operating systems" of both hemispheres are what enable both gifted students and their teachers to attend to the details of the technology and to the larger picture, the possibilities for refining and extending the usual

approaches to incorporating technology into the curriculum.

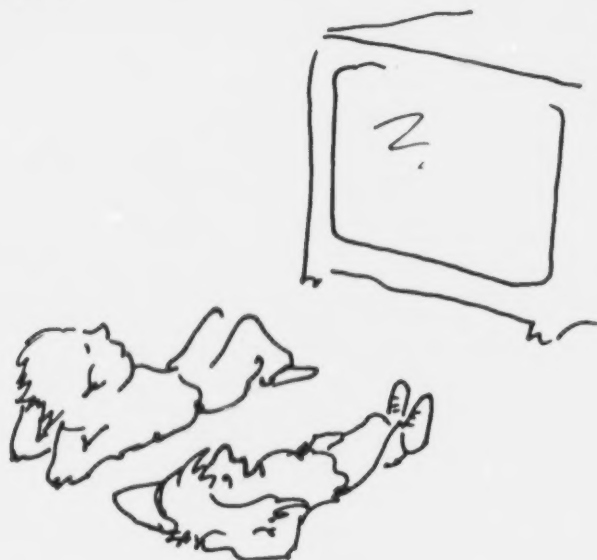
Here's one simple example: it's called "invisible writing with a computer." When students are first trying to get their thoughts into words using a word processor, they can turn the monitor's brightness or contrast knob down so they can't see their evolving texts. After typing for a short time, they can turn the monitors back up, examine what they've said, and continue to compose visibly or invisibly. After practicing this method, students report that the technique frees them from the compulsion to fix typos and do other premature editing that interferes with the composing process. They're better able to concentrate on what they're thinking about, what they say comes more from their subconscious, and they're more interested in seeing what they have to say. (For a more extensive description of this research, see "Not Seeing is Relieving: Invisible Writing with a Computer," S. Marcus and S. Blau, *Educational Technology*, April 1983. For a more recent discussion, see the author's chapter in *Lesson Plans for the Computer Age*, Wm. Wresch (ed.), (in press) National Council of Teachers of English.)

Here's a more complex example, involving the artificial intelligence program A.I. (available from Scholastic, Inc.). With this program, students can design a variety of games, decide what "winning" means, teach the games to the computer, play them with the computer, and watch the computer become better at playing them than the people who designed them. The program uses memory, knowledge acquisition, induction, searching, and pattern matching. It also displays aspects of "foresight."

One interesting application here is to have a group of students in one room design and play the games, but with the "adversaries" placed in two other rooms. In one of these other rooms is a group of students running the A.I. program. They're merely following the written directions given by a messenger shuttling between the rooms, who is carrying responses back to the game-designers. In a third room is a group of students who use their real intelli-

ON THE LIGHT SIDE

by Jean Watts ©



JWatts © 1991

Hype, non complex...inflexible but with closure... Yes, perfect for vegging.

gence to follow the directions provided by the messenger. These students are also trying to counter the game-designers' moves in order to win the game.

Can the students who are designing the game tell which room has the computer in it, i.e., which adversary is using real intelligence and which is using artificial intelligence? If they can't, then the program has passed the Turing Test for erasing the line between artificial and real intelligence.

Students can be challenged to articulate the nature of "intelligence" and to describe ways that A.I. does and doesn't fit their definitions. Further discussions can explore what kinds of intelligence it takes, for example, to write a novel — and to read a novel. How do writing and reading depend on the dimensions of intelligence that A.I. uses (memory, induction, foresight, etc.)? And to what extent does this whole discussion, to borrow Sherry Turkle's words, "fascinate, disturb equanimity, and precipitate thought"?

The A.I. program was not designed to stimulate discussions of what it takes to write a novel, but it provides an interesting opportunity to do so. This is an example of the kind of

adapting of software from one context to another that is at the heart of the Higher Order Thinking Skills (HOTS) project. (The A.I. example was not taken from the HOTS curriculum and should not be taken to be representative of it.) Those readers familiar with HOTS may well wonder why I'm including it here, since it was originally developed and is perhaps best known for its use with "at-risk" and Chapter 1 students.

The HOTS program, as described by its originator, Stanley Pogrow, was designed to develop four general thinking skills: meta-cognition, inference, decontextualization, and synthesis. Teachers are trained to "maintain proper levels of ambiguity in discussions so that students would have to resolve ambiguity, construct meaning, and articulate complete ideas and strategies." Pogrow suggests that "HOTS may be the first program designed for Chapter 1 students that has been adopted for gifted students." (For information about HOTS, write Stanley Pogrow, College of Education, University of Arizona, Tucson, AZ 85721.)

One of the special features of the HOTS program is that it applies its general techniques to a wide variety of computer software — programs that weren't necessarily designed with the HOTS goals in mind. This is a particularly noteworthy approach. It encourages us (and our students) to reconsider the materials we have at hand, to see how they are more than we imagined, to make the familiar strange (and the strange familiar). Talented California educators have been applying the HOTS program at a variety of grade levels. (Those interested in a middle school environment, for example, can write Dr. William Younglove, Lindbergh Middle School, 1022 E. Market Street, Long Beach, CA 90805.)

A different kind of project, one that features telecommunications technology, is *kids2kids*, which currently involves some 3000 students and their teachers throughout California. Students work on long-term writing projects throughout the year, communicating with other students in paired classrooms at distant locations (including those from around the U.S. and in other countries.)

As described by its director, Steven Pinney, "*kids2kids* is run by teacher/consultants who create and present lessons designed to challenge students to produce their best thinking/writing. By providing a *real* purpose for writing and a *real* audience, the *kids2kids* network exempli-

fies the spirit of the California Language Arts Framework." Students take on writing projects that are consonant with California Assessment Program writing categories and with the missions of the California Writing Project and Literature Project. Their work is published in "hardcopy" anthologies as well as on the network's system. (For information, write Steven Pinney at *kids2kids*, The Writing Center Rm. 24, 3224 California Street, Costa Mesa, CA 92626.)

As a final example, I'll mention the work done by Pat Hanlon and Bill Campbell, the former an English teacher, the latter a school librarian (now retired). They are well-known in connection with The Grapevine Project, one of the first extensive computer-based multimedia environments for studying literature (specifically, *The Grapes of Wrath*.) They were among the first to incorporate computers, laserdiscs, text, images, and graphics into a "hypermedia" environment, one in which each information source was extended and connected to others. In their words, "If a library is to be something more than a room where books are standing up instead of lying down as they are in a textbook room, then it is a place where connections — paths leading from one thing to another — can be discovered and pursued. The catalog and indexes let learners follow these leads now, in a rudimentary way, but the computer will expand that power beyond our ability to imagine it. Until now, libraries have hung together like a wired-together skeleton of a brontosaurus. They are about to acquire a nervous system." (For information, write Pat Hanlon, Lowell High School, 1101 Eucalyptus Drive, San Francisco, CA 94132.)

In the November 1990 issue of the *Communicator*, Barbara Brandes reported that current educational reforms are consonant with the goals of education for the gifted. These include an emphasis on problem-solving and reasoning skills, the encouragement of creativity, the use of long-term projects, recognition of "artistic intelligence," and collaborative solving of complex problems. The very brief descriptions above of technology-related efforts should indicate that there are ample models for incorporating technology into the curriculum, models that are exactly in tune with the mission of education for the gifted.

To nurture, direct, and disseminate the best of current practice, it's helpful to have some guidelines for supporting innovation, since new methods, attitudes, and technologies are often much harder to sustain than to introduce. Here are a few suggestions, based in part on the working assumptions of the California Writing Project/California Technology Project Alliance.

- Teachers from different disciplines and different grade levels have much to teach each other about how technology can be used creatively.
- Practicing technology-using teachers provide the best source of expertise on what actually works in a classroom, and they make the best teachers of other teachers.
- The best teachers keep in touch with new developments in their own fields and in educational technology. They need to, in order to acquire, exercise, and justify their influence on decisions affecting the use of technology in their schools.
- Teachers can advance the field significantly by conducting classroom-based research and by publishing their teaching ideas.
- Administrative support is crucial to ensure continued inservice training and to encourage educators to brave the risks that innovation always entails.
- Students have much to teach us all about the potential for technology in education.

New and increasingly powerful technologies are both enhancing and transforming gifted students' already remarkable potential. While the future benefits of educational technology depend to a great extent on the companies that create the tools, they derive even more from the people who create using the tools. The vitality of technology-enriched curricula still depends on talented teachers who acquire an informed exuberance. They will continue to be a major force in making the most of what the technology and their students offer them.

Stephen Marcus, PhD, is Coordinator of the California Writing Project/California Technology Project Alliance. He can be reached at SCWriP, Graduate School of Education, University of California, Santa Barbara, CA 93106.

An Open Letter to Parents of Students

by David Moursund

The International Society for Technology in Education (ISTE) is a non-profit professional society of educators working to improve our educational system. The following article is an expanded version of an Editor's Message that appeared in the October 1990 issue of The Computing Teacher, which is a publication of ISTE. The Computing Teacher editorials for the 1990-91 publication year consist of a sequence of letters to the stakeholders who should be most concerned about use of computers in schools. These include students, parents and taxpayers, teachers, curriculum leaders, school administrators, business people, teacher educators, and state and federal government officials.

Dear Parent:

Probably you have seen television reports and read articles that say our schools aren't doing too well. These reports are correct. Our children aren't getting nearly as good an education as we would like. This is especially true when it comes to learning how to use computers.

When I was a student, we didn't have computers in my grade school or high school. The computers that existed in those days were big, expensive, and hard to use. Probably this was also true while you were in school.

However, the world has changed a lot since then. Now, computers are much better, cheaper, and readily available. Now, millions of people have computers on their desks at work and/or for use at home. Now, computers are built into most of the new machinery being installed in offices, stores, and factories. Children have toys, such as Nintendo, that contain powerful computers.

In my personal experience giving workshops, I have found school districts in which well over half of the students have good access to computers at home. Many of these students have parents who role-model appropriate use of computers as aids to accomplishing adult tasks. These school districts tend to be the ones that also provide students with good computer access in the schools. In other school districts students have relatively poor computer access, both at home and at school. Clearly this country

faces a major equity issue in terms of computer access for educational purposes.

Now we come to the real purpose of this letter. The chances are that your children are not learning much about computers in schools. "Not true," you say. "I know that my kids have used a computer at school." The trouble is, there is a good chance that they aren't learning creative uses of computers as aids to solving problems in all subjects. They aren't learning to make routine use of computers as tools for thinking. The computer facilities which they are using are apt to be terribly out of date.

Let me ask a hard question. Why do we consider reading, writing, and arithmetic to be the "basics" of education? Think about some answers before you read the next paragraph.

Reading, writing, and arithmetic are the basics of education because they are aids to the human mind. They help the human mind to store and process information. They help the human mind to solve hard problems. Every person can benefit from knowing how to read, write, do arithmetic, and use these mind tools to help solve problems.

Now a new mind tool has been invented. It is an important addition to reading, writing, and arithmetic. The trouble is, most of our schools are doing a very poor job in helping students learn to use this new mind tool. It is easy to see why. Most teachers are like you and me—they did not learn to use computers while they were in school. Most textbooks do not assume that students have good access to computers. Most tests do not allow students to use computers. Most students do not have very good access to computers.

Think about the last sentence for a minute. Pencil and paper are very important mind tools. You would be very unhappy if your children did not have easy access to pencil and paper throughout the school day and as they did homework at night. For millions of adults, the computer is now equally important. They would not think of attempting to do their work without having a computer readily available. This will be even more true by the time your children become adults.

Most of our schools do not have nearly enough computer equipment to allow students to use computers whenever it would be appropriate. Most of our teachers lack the training that would prepare them to take advantage of having many computers in their classrooms. Many of our schools still stress rote learning, rather than learning for understanding and for problem solving. Most of the curricular materials the teachers and students use are not appropriate for use in a computer-rich classroom environment.

Eventually all of this will change. Ten or twenty years from now most students will have easy access to computers. Every teacher will know how to work in a school setting where there are lots of computers. Students will be allowed to use computers when they take tests. (Why not? Adult workers are allowed to use computers when they are faced by the test of solving the real world problems they encounter on the job.)

Unfortunately, that will be too late for your children. There are some things you can do about this. It may be that you can create a home environment in which computers are routinely used to assist in problem solving and tasks which require higher-level thinking. If you have the knowledge, skills, and money, then this is a very good thing to do. Another possible approach is to work with some other parents so that together you accomplish this task.

In any event you will also want to work on improving the quantity and quality of computer use in your child's school. Even a very few concerned parents can cause a major change in a school. They can cause this change by making their wishes clearly known to teachers, school administrators, and the school board. Here are some of the kinds of questions to ask:

1. Are your children learning to use a computer to solve hard problems in all different subject areas, or are they mainly using computers to help memorize simple facts? A good quality modern education stresses higher-order cognitive skills and the use of appropriate technology to aid in solving problems.
2. Do the teachers feel comfortable in routinely using computers for their own work and with their students? Do they routinely role model appropriate use of computers?
3. Do students get to use calculators and computers when taking tests? If not, why not? Is the school experimenting with this

idea, moving rapidly toward a time when it will be routine for students to make use of such technology when they are being assessed?

4. Do students have to leave their classrooms and go to a lab to use computers? If so, they cannot make routine, easy, everyday use of computers. Teachers cannot integrate their routine use into the curriculum. What are the school and district plans to make computers readily available for routine, everyday use by all students?
5. Does the school have a computer coordinator or technology facilitator with substantial release time from teaching duties who has the job of helping teachers use computers in their everyday teaching? Substantial research points to the need to provide such help to teachers if they are going to make good progress in integrating computer use into their teaching.

Computers are a powerful aid to the human mind. However, it is still very important that students learn reading, writing, arithmetic, and problem solving. All of these ideas and tools should be integrated together and used throughout the school day by both students and teachers. The results will be an improved educational system.

Let me know about the progress you make in working to improve the education of your children. Please write.

Sincerely yours,

David Moursund, Executive Officer
International Society for Technology in
Education
1787 Agate Street
Eugene, Oregon 97403

*Books are delightful society.
If you go into a room filled with
books, even without taking them
down from their shelves,
they seem to speak to you,
to welcome you.*

William E. Gladstone

Vision: Technologically Enriched School of Tomorrow (TEST)*

by Gary G. Bitter

* This represents the recommendations and visions of the Final Report prepared by ISTE under a grant from the IBM Educational Systems.

The International Society for Technology in Education (ISTE) realizes that there exists no single, simple solution to our educational ills. However, there are many examples in current classrooms of dramatic successes when students and teachers are provided with easy access to technology. Careful study of these successes reveals that technology enables well-trained teachers to provide their students with superior learning experiences. The use of technology

- permits teachers to assume new roles in the creation of learning opportunities for their students,
- encourages individualization of learning experiences to accommodate various learning styles,
- allows learning experiences far beyond anything available otherwise,
- provides strong motivation for students, and
- reduces time-consuming paperwork and allows teachers more time to take advantage of the opportunities for technology.

How can we effectively implement technology in the learning environment? The International Society for Technology in Education reveals five major recommendations and twenty-three vision statements. These are intended as a launching point for educators.

Recommendations for Educational Decision Makers

Recommendation 1

As a nation, the United States must recognize the need for improvement in its educational system and seize the opportunities offered by technology.

Visions:

- We urge the President to declare the 1990's as **The Decade of Technology in Education**.
- We urge the Congress to enact legislation that substantially increases support for research and development efforts in applications of technology in education. This legislation must support development of new

assessment techniques to reflect the new learning that technology encourages. This legislation must support improvements in teacher education programs, at both preservice and inservice levels.

- We propose that a National Technology Trust Fund analogous to the National Highway Trust Fund be established. The Fund will use its revenues to ensure that no student is denied access to needed technology because that student resides in a community with an inadequate local tax base, and to support studies of the efficacy of educational technology.

Recommendation 2

As a nation, the United States must provide every student with the opportunity to become what each is capable of becoming. It must provide an environment for each student that is conducive to learning.

Visions:

- **Equity**—Students in the United States must be guaranteed access to educational technology in their educational program whenever needed without regard to gender, race, ethnicity, socio-economic status, mental or physical limitations, geographic location, or national origin.
- **Curriculum**—In order to permit our students and teachers to take maximum advantage of technology, the curriculum must change in major ways. Technology must be integrated into the curriculum, rather than being a supplement to the curriculum.
- **Assessment**—Because educational technology opens new worlds of learning, permits development of higher-order thinking skills, and supports a wide variety of learning styles, new assessment techniques that reflect the new skills and the new learning environments must be developed to supplement and finally to replace conventional tests.
- **Learning Environments**—The learning environment should include access to a wide range of technologies and to the entire world of information. It should offer opportuni-

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ties for creativity, critical thinking, information access and manipulation, communication, and multi-sensory stimulation.

- **At-Risk Students** – There should be a strong national focus on using technology to reduce substantially the number of at-risk students who drop out of school.
- **Student/Computer Ratio** – By the year 2000, all students should have continuous access to a wide range of technologies.

Recommendation 3

As a nation, the United States must empower all teachers to provide the best education for every student in their classes.

Visions:

- A computer on every teacher's desk
- A computer in the home of every teacher
- A telephone and modem in every classroom
- **Teacher Support** – Every teacher must have direct classroom support related to the uses of educational technology.
- **Continuing Professional Development of Teachers** – There must be easy access to and strong support for the continued professional development of teachers.
- **Preservice Teacher Education** – Teacher education programs must be designed to prepare their students to move into classrooms with rich, technological support. Federal and state subsidies should be provided to establish these programs and attract the best and brightest into these programs.

Recommendation 4

As a nation, the United States must redesign its school systems to prepare its students for the 21st century.

Visions:

- **Restructuring** – Only by restructuring education through the applications of technology can we as a nation achieve the educational manifesto that we all hold for our children.

- **School-Industry Alliances** – Because industry has a direct interest in students and technology, we encourage school-industry alliances in a variety of forms.

- **Communications** – A national educational computer-communications network must be established to connect all levels of education with all facets of society. This would permit collaboration among educational fields and allow ready access to information sources and expertise in the world community.

- **Distance Learning** – Distance learning should be encouraged to provide teachers and students greatly enriched educational options while eliminating barriers of time, geography, physical limitations, and lack of local expertise.

- **Investment in Technology Equipment** – School districts should plan their technology funding on a replacement cycle of no more than 5-6 years. This will ensure that their students and teachers have access to modern equipment that takes advantage of recent technological developments.

Recommendation 5

As a nation, the United States must ensure that schools are managed effectively.

Visions:

- **Student Services** – Administrative student support services must be automated.
- **Curriculum Management** – Technological solutions should be used to facilitate curriculum integration and monitor achievement for all students.
- **Business Practices** – Effective workplace technologies must be used to support school business operations.

Conclusion

Research undertaken by the International Society for Technology in Education (ISTE) indicates that our schools can be substantially improved through an appropriate restructuring

process. This restructuring involving technology can reduce drop-outs, increase basic skills, increase higher-order cognitive skills, and better prepare students to become productive adult citizens in our rapidly changing society. The major conclusions are:

- Technology can help well-trained and well-equipped teachers to develop the intellectual potential of all their students.
- Technology in the hands of trained teachers is especially powerful when used with at-risk students.
- Teachers are the key to success in any educational change. They must be trained in the change. They must be supported in implementing that change. They must be provided with adequate resources to create the change.

ISTE pledges to lead the effort for implementing these recommendations in cooperation with other organizations, agencies, and the private sector.

These recommendations developed by ISTE as part of its VISION: TEST project provide solutions so that all students can achieve at levels beyond anything possible in conventional classrooms.

For Further Information

The VISION: TEST Project has prepared two major reports – one is a set of video tapes which focus on several aspects of the introduction of technology into school environments; the other is a more conventional paper report. The purpose of these reports is to assist the nation's educational decision makers in their preparation of designs for restructured educational systems across the country, as they respond to the call of the President and the Governors for a return to pre-eminence for the United States by the turn of the century. For information on how to obtain copies of these reports, or for additional information on VISION: TEST, please contact ISTE and ask for VISION: TEST publication list at (503) 346-4414, or write ISTE at 1787 Agate Street, Eugene, OR 97403-9905.

Alternatives to Integrated Instructional Systems

by Peter Kelman

excerpted from a paper given at the National Educational Computing Conference in Nashville TN, and appears in its entirety in the 1990 NECC Proceedings

At the core of the recent popularity of Integrated Instructional Systems (IISs) is the conviction among politicians, business leaders, various commissions, and educators that our present educational strategies are not working for that considerable segment of the school population regarded as "at-risk." However, while there is little disagreement that our educational system is facing problems of unprecedented proportions, many of us are not convinced that offering so-called "at-risk" students a steady diet of IIS no-fail, "instant education bytes" will either whet their appetites for learning or develop their minds in ways that will assure them, or our nation, of future success.

This paper will strongly criticize Integrated Instructional Systems as being an inappropriate use of computers with students at risk, as well as being wasteful of limited computer resources in schools. It will further criticize the top-down manner in which these systems are being implemented in many school districts. It will then propose alternative models of computer-facilitated education for all students, including those at risk.

The IIS Phenomenon

A careful analysis of confidential sales figures from the educational computing industry suggests that school spending on computer software and hardware has more than doubled over the past two years. Moreover, these figures show that this increase is due primarily to the purchase by cities and large school districts of comprehensive computer-managed instructional systems, commonly known as Integrated Learning Systems.* This analysis also reveals the fact that the funding for these purchases often comes from a variety of federal programs aimed at so-called "children at risk." It would appear that IIS-related purchases for 1990 exceeded half a billion dollars.

Although there is considerable variation in curriculum focus, pedagogy, and age-range served among the various IISs, it is clear from private discussions with both buyers and sellers of IISs that their fundamental appeal to

school administrators is the provision, in most cases, of a computer-managed comprehensive basic skills training program for at-risk students that is run largely as a pull-out program in which every child spends 45 minutes to an hour every day; a plethora of accountability-oriented computer-generated reports for each child, class, school, etc.; a single vendor for purchasing, technical support, and staff training; and even assistance with funding the purchase through arranged financing and/or help in drawing up politically attractive bond issue proposals.

While representatives of the various IIS companies will undoubtedly claim that one or another of the characteristics just cited does not apply to their product, this overall description of their appeal to district administrators remains accurate. This can be ascertained by analyzing where the majority of IIS installations are (elementary schools in districts that emphasize central decision-making, accountability, and uniform coverage of mandated curricula) and observing how they are used (primarily to teach basic math and language arts skills). (Software Publishers Association, 1990)

Some Lessons from the History of Integrated Instructional Systems

Many of us who have been involved in educational reform efforts over the past 25 years and in educational computing for the past ten years, are painfully aware of the dangers of the kind of quick-fix technological solutions for complex educational problems represented by the current generation of Integrated Instructional Systems and their fore-runners, mainframe-based Computer-Assisted Instruction (CAI). We are particularly wary of such technological fixes being applied to those children who most need a quality education. Thus, we are troubled by the rate at which many big-city and large-district administrators appear to be rushing to spend enormous amounts of money on IISs, despite these systems' narrow focus on rudimentary basic skills, which in isolation are unlikely to prepare students for real success in life.

* *Integrated Learning System is a somewhat misleading term under which some of these systems are marketed in an attempt to focus the customer's attention on the learning that is supposed to occur when they are used. EPIE, in its study of these systems, argues persuasively that it is more accurate to call them Integrated Instructional Systems, since "they do not possess the level of learner-adaptiveness and other features that education's yet-to-be-developed computer-assisted learning systems will one day possess." (p.i.l, Sherry, 1990) For the remainder of this paper, we will use the term Integrated Instructional Systems or IISs.*

Further, many of us who are advocates of educational computing worry that the current enthusiasm for IISs will soon turn to disillusionment, to the detriment of all educational computing. This is precisely what occurred in the late 1960s and early 1970s. In 1972, the Educational Testing Service carried out a study to determine why educators at that time had not been particularly enthusiastic about the use of computers in education. (Anastasio et al., 1972) The study concluded that the principal reasons were: their high cost, the unreliability of the technology, and the inadequacy of teacher training. Also mentioned as factors in the study were educators' skepticism about results, and negative feelings about computers dehumanizing education.

That study was based on educator reaction to the only use of computers in education at that time, which were IIS-like CAI systems, yet the conclusion drawn by many educators, politicians, and the media for years to come was that computers, in general, were not effective or appropriate for use in schools. As a result, throughout the 1970s there was very little administrative support or local funding for computer use in schools, despite the availability of a number of mainframe and later minicomputer-based CAI programs, including CCC, PLATO, and Time Share Corporation's Dolphin System (later acquired by Houghton-Mifflin). Those systems, the progenitors of today's IISs, were bought in small numbers almost exclusively with federal funding targeted for the "disadvantaged."

Fortunately, the advent of stand-alone microcomputers in 1979 revealed and stimulated interest in a whole range of possible uses of computers in education beyond CAI, including motivational learning games, student and teacher productivity tools such as word processing, spreadsheets, database activities, simulations, telecommunications, creativity and publishing tools, and much more. Although, as with all use of computers in schools, there are really no reliable studies showing conclusively that any of these computer applications have a long-term ameliorative effect on test scores, there is little doubt in the minds of millions of teachers, students, and parents that such uses of computers enrich their learning and their lives.

Recently, however, with the increasing technical reliability of local area networking (LAN), many schools are linking their stand-

alone microcomputers, primarily to achieve certain managerial and administrative goals. In itself, such use of networking can have positive effects on education, in particular more cost-effective use of limited hardware and software resources. Nevertheless, some of us worry that in too many schools networking is being used to turn back the clock, to reduce stand-alone microcomputer use and functionality to that of a terminal on a mainframe computer.

IISs use computers in exactly the same way that the ETS study found to be unpopular with educators in the early 1970s, and it is our fear that when educators determine that today's IISs are similarly ineffective and inappropriate, there will once again be a backlash against all computer use in education. Already, some administrators are beginning to realize that the on-going high costs of these systems may not be justified by the modest short-term test score gains they appear to engender.

A Brief Critique of Studies of IIS Effectiveness

In making their sales presentations, some IIS companies contend that "the research" has shown their systems to be effective in, among other things, raising test scores. Various school administrators have made similar claims in studies carried out by their school systems. However, according to EPIE:

EPIE would have liked to have been able to include results of independently-conducted, longitudinal, quantitative studies of IISs. Unfortunately, EPIE was unable to identify a body of such studies. This finding is confirmed by Dr. Henry J. Becker of Johns Hopkins University, an expert in research and evaluation methodology, who has investigated several studies to see if any meet the requirements of scientific design. To date, he has not identified any that meet this criterion. (p i.3, Sherry, 1990)

Dr. Becker has carefully analyzed numerous studies commissioned by IIS companies, as well as those carried out by the school systems themselves, and has found none which can reasonably claim to have demonstrated the successes claimed in the study. Similarly, this author has read and analyzed virtually every study cited by IISs to bolster their sales argument and has found them all to be unpersuasive.

First, a large number of the studies cited were commissioned by, or done in close co-

operation with one or another of the IIS companies, and hence are suspect from the outset. Second, the claims made by representatives of some of the IIS companies regarding the results of such studies are, for the most part, not even supported by the studies themselves; this is especially true where results are too weak to be considered statistically significant or where the experimental design does not permit drawing the conclusion claimed.

In light of these criticisms, it is unfortunate that representatives from many of the IIS companies insist upon citing these various studies to support their sales efforts, particularly for IIS use in at-risk programs. Ultimately, this tactic is likely to backfire when post-IIS test results in these districts fail to meet expectations.

A Critique of IIS Philosophy of Educational Computing

In addition to doubts about costs and effectiveness, an increasing number of concerned educators, including this author, are expressing their doubts about the educational philosophy of most IISs. To us, IISs represent a step backwards, a retreat from the great progress educational computing has made since the days of mainframe-based CAI. Moreover, they embody a model of education and educational decision-making that has persistently failed to attract the support of teachers and other educators since the late 1960s. As such, these systems are likely to fail once again. Our hope is that this failure will not adversely affect all of educational computing.

It is thus important to distinguish the underlying philosophy of educational computing of most IISs from that of the majority of computer-using educators, who have long since progressed beyond mere CAI. Let us begin this by contrasting certain basic assumptions of more progressive educational computing with those of most IISs.

1. Despite our enthusiasm for computer use in schools, most computer-using educators believe that education is, at base, a human endeavor. It is first and foremost an interaction between people (student-teacher and student-student). Machines can be useful as tools, but not as stand-in teachers.

2. Most computer-using educators also believe that teachers and students should control computers, not be controlled by them. Computers can be powerful tools of productivity, creativity, and empowerment. All students and

all teachers should be provided with access to and training in the use of such tools.

3. Most computer-using educators believe that when decisions are made concerning computer use in schools, extreme care must be exercised so that educational value is not sacrificed for bureaucratic convenience. Otherwise, the children may suffer.

4. Most computer-using educators have learned from painful experience that unless teachers are involved at all levels of decision making concerning computer use in schools, implementation of the computer program will likely fail. (Coburn et al., 1984) Moreover, in light of the recent move toward "school restructuring," it would appear to be politically unwise for district-level administrators to impose major curriculum programs on their schools.

Computers as Facilitators of Higher-Order Thinking Skills

Most thoughtful educators today recognize that unless children have the opportunity to develop the thinking structures necessary to process new information, all the basic skills training in the world will come to naught. Used creatively and appropriately, computers offer a unique opportunity to provide children with interactive environments in which they can develop these higher-order thinking skills.

Numerous software publishers have for years published dozens of programs aimed at promoting student critical-thinking and problem-solving skills. These programs have been used by thousands of teachers with millions of children with great enthusiasm and success. Yet, almost without exception, the IISs eschew such approaches to facilitating higher-order thinking, in favor of CAI aimed at low-level basic skills. Although some IIS companies claim to address higher-order thinking skills, in few of these cases do the claims stand up to scrutiny of their product.

Today, schools wishing the administrative convenience of networking, without buying into the narrow basic skills-focused IIS vision of education, can do so because most educational software publishers are making many of their stand-alone programs available in forms that will run on networks. This includes hundreds of programs aimed at facilitating student higher-order thinking skills. Even owners of most IISs can use (and indeed are using) such programs, either by installing them on the network alongside the IIS curriculum, or by booting

stand-alone versions of these programs in the floppy disk drives at the student work station. It should be noted that in most cases, these IIS owners are doing so without the cooperation of the IIS companies, despite the fact that many of these companies advertise "third-party" compatibility.

One approach to using computers to promote higher-order thinking skills with at-risk students is particularly worth mentioning because it also emphasizes the importance of human interaction in a computer-mediated instructional setting. This approach is the Higher Order Thinking Skills (HOTS) Program developed by Dr. Stanley Pogrow of the University of Arizona. (Pogrow, *Phi Delta Kappan*, 1990; Pogrow, *Educational Leadership*, 1990 and numerous other papers and articles by Pogrow on HOTS) HOTS is not a software program; it is a method in which teachers use off-the-shelf software with children in particular ways that systematically build all-important critical-thinking skills.

HOTS uses computers and special teaching techniques, particularly Socratic dialogues between students and teachers, to develop student thinking and social skills, as well as to increase student self-esteem. The HOTS strategy is proactive, rather than remedial. Instead of reteaching an atomized series of out-of-context "basic skills" over and over again, HOTS provides students with the general conceptual skills that then enable them to learn and retain the complex ideas and information found in most curricula and to do so the first time they are taught - by their classroom teacher.

Implemented as a pull-out program with Chapter 1 and mildly impaired learning disabled students in grades 4-6, HOTS has been validated by the National Diffusion Network. Among other documented successes, HOTS students are currently surpassing national averages for basic skills gains in reading and math, and some HOTS students have actually been rediagnosed as "gifted and talented." This is an especially remarkable result because HOTS does not explicitly teach basic reading and math skills; instead it teaches the underlying thinking skills that enable students to confidently handle new and unfamiliar educational and intellectual challenges they encounter in the classroom, on standardized tests, and in life. If there is any IIS program that has been able to match HOTS in terms of independently validated results, particularly results that last

over time, this author is unaware of it.

Computers as Vehicles for Creative Expression

Throughout society and in thousands of schools across the country, computers are used as vehicles for creative expression. Computer-based paint, drawing, and printing programs are used by children to express themselves in the graphic arts. Computer-based music composition and performance programs enable students to explore their musical talents. Word processing, classroom publishing, and other writing-based programs provide students with power tools to express their thoughts and ideas in writing.

Yet none of the IIS programs provide graphics or music programs, and only a few contain any kind of a word processor, let alone a child-appropriate word processing or publishing program. Worse, the use of most IISs to process children through endless sequences of CAI lessons chews up so much of a school's limited and precious computer time that there usually isn't room or time for the children to use creative computer tools in the relaxed and contemplative atmosphere such use requires. Thus, it is not enough that a school is able to buy stand-alone creativity programs to use alongside their IIS program, they must also reprioritize so that students have the right kind of access and time to use these tools creatively.

Moreover, a school that wishes to supplement an IIS with computer-based creativity tools must configure their computer workstations and on-line printers in such a way that individual students can save and print their products at or near their local workstations. In contrast, many IISs are set up so that all saving is to the file server (since all that is saved is records of student CAI activity) and all printing is to a remote and secure central printer (since all that is printed are reports of student CAI activity).

Computers as Tools of Personal and Professional Productivity

Our society, both in the workplace and at home, has been transformed by the emergence in the last ten years of personal and professional productivity tools such as word processors, desktop publishing programs, database managers, and spreadsheets. This fact has been recognized by educators across the country for at least the past five years, as school after school

has made these power tools available to their students in a variety of ways: many elementary school students learn the fundamentals of keyboarding and word processing, so they can write short stories and reports on the computer; many middle-school students add to their word-processing skills the experience of using content-area databases to actually research interesting questions in social studies and science; at the secondary school level, many students also get the opportunity to use more quantitative productivity tools such as spreadsheets, statistical packages, and function plotters in their business, social studies and math courses; and desktop printing in schools has become so prevalent at all levels that it is often called "Classroom Publishing."

Yet none of these tools is available on most IISs. Again, while it is possible with most IISs for a school to buy such programs, many of which are now available in network versions, and to use them side by side with the IIS, this is rarely done. Why? First, because the IIS chews up virtually all available computer time. And second, because after investing sometimes hundreds of thousands of dollars in IISs, there is little money (or professional commitment) remaining for other software approaches. With that kind of investment, what administrator can afford to have the computers used for any other purpose, but the one aimed directly at improving test scores?

This may well be the most serious indictment of IISs, since it means that when computer resources are devoted to IIS training on traditional basic skills, the children, particularly those at risk, are being denied the opportunity to learn the productivity skills that they will need in their lives and in almost any line of work in the twenty-first century. This is not unlike the tragic situation in too many Vocational Education programs in which the neediest students are taught outmoded vocational skills on outmoded equipment, thereby dooming them to the most menial, unskilled labor.

The Role of Computers in Cooperative Learning Environments

Collaborative learning is more than an educational buzzword. It is an educational reflection of the emerging work place of the 1990s. As a result of both technological advances and business practices, more and more offices and factories depend on their employees to work cooperatively on every aspect of a project. And in the more forward-looking schools across the country, collaborative learning is both a means to and an end of many classroom activities.

Just as computers play a major role in collaborative activities in the work place, so too may they play such a role in collaborative education in the school. Two outstanding examples of this are The Kids Network, developed under a National Science Foundation grant by TERC in Cambridge, MA, and Earth Lab, developed under various grants by the Bank Street College of Education in New York City.

The Kids Network, now published by National Geographic, has gotten so much press attention recently (e.g. White, 1989) that it will not be discussed here in detail. Suffice it to say that in this program, students all across the country (and the world) collect real scientific data and send it via modem to real databases, where real scientists use it to study real phenomena. Talk about empowerment, collaborative learning, and developing real-world skills!

Earth Lab is still at the stage of being implemented at a single pilot site, the Ralph Bunche Intermediate School in West Harlem, NY (Newman and Reese, in Sherry, 1990). There, both in two computer labs and in various classrooms, students, many of whom are severely at risk, work quietly and enthusiastically at Apple IIe and GS computers connected by either a Corvus or an AppleTalk network. On both network systems, teachers and students can communicate written materials, notes, assignments, etc. through an electronic mail feature built

into The Bank Street Writer III. In addition, students work on science investigations, in small groups and as a whole-school team, by pooling data they collect in "work spaces" that are specifically set up by project on the network to facilitate such collaborative learning activities. In this way, student learning and instruction emulate the workplace by organizing all activities around projects and problem solving, rather than as a sequence of disconnected skill lessons or individual software programs, selected from a network menu.

Students at Earth Lab can also play a real-time network-based simulation game with other students. Finally, they can access any one of dozens of network-compatible educational programs or boot up stand-alone educational software on disk drives at the workstations. These selections may be student-initiated or assigned by teachers, often by "leaving" an assignment in the student's mailbox, not, as in many IISs, by having a student locked into a lesson by the system.

Earth Lab is a dramatic example of how a network environment can be used to promote specific empowering educational objectives and at the same time be open enough to accommodate individual teacher priorities and individual student interests.

Computers as Multiple Modality Learning Environments

Beyond the rhetoric and marketing hype of educational multimedia is the important recognition that all children, especially today's MTV generation, learn through many different modalities. The technologies of interactive videodisc and CD ROM, with other multimedia technologies to come, are now presenting educators with ways to provide multiple-modality learning environments for their students. Nowhere is this opportunity more welcome than for students at risk.

This year educators are being treated to a cornucopia of new multimedia products including: ABC Interactive's current events videodisc

series with titles on Martin Luther King, the Holy Land, and Election 88; National Geographic's history videodisc product GTV, complete with a "map rap;" Scholastic Software's multimedia educational productivity tool *Point of View: The Scholastic History Processor*; and a number of multimedia authoring systems like *Tutor Tech*, *HyperStudio*, and *HyperScreen*.

All the other multimedia products referred to earlier come complete with lesson plans, connections to the curriculum, and most importantly, easy-to-use authoring tools that enable students and teachers to create their own multimedia reports, presentations, and lessons, using superb footage from these videodiscs and any others the school might own or acquire. Now that's empowerment!

Computers as a Means of Empowerment

Let us conclude by reaffirming the desirability of using computers in all schools in the ways they are used in society: to empower their users. This means that computers should be used as personal and educational productivity tools by teachers and students. A corollary to this goal is the view expressed in writing and in speeches by countless educational computing leaders, that it is a waste of computing power, financial resources, and human potential to use computers for endless, lock-step atomistic CAI lessons.

Instead, computers should be used by teachers to write lesson plans, reports, handouts, and notes to students and teachers; to comment on student written work and other forms of expression; to keep track of student progress in their classroom activities; to facilitate classroom presentations and demonstrations; to keep up with professional developments and share ideas with colleagues; etc.

Thus, teachers need a computer workstation, loaded with personal and professional productivity software, at their desks, linked via network to student workstations in the classroom or lab. And they need a similar arrange-

ment at home, linked to the school by modem. Is this vision too futuristic? Not if we regard it as a guiding vision that we can work toward gradually. Many of us prefer such a vision, even if it cannot be fully implemented today, to the spectre of IIS administrator-controlled, centralized, record-keeping systems with little or no direct access by teachers. Apparently, so do the major teachers' organizations, to judge from a number of Albert Shanker's recent speeches and the NEA's request for information from the hardware companies for an affordable teacher workstation, similar to that described above.

Like their teachers, students should have the opportunity to use computers to explore ideas, to analyze data, to write papers and stories, to receive and carry out written assignments, to research databases, to design, compose music, publish, plan, work with a team on projects, etc.

Thus, students should have almost constant access to a computer workstation in the classroom and the lab, linked via network, to a fileserver containing a vast array of productivity software, creativity software, wholesome recreational software, educational software, shared hardware resources, shared databases, telecommunications capabilities and much more.

This vision is not futuristic in the least. All of this is possible and is in place today in schools that prefer this vision of education (and networking) to the narrow vision of computer labs filled with students working in 20-minute chunks of time on "byte-sized" lessonware, controlled by an impersonal lesson sequence, developed by a distant software publisher.

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Dr. Peter Kelman is Publisher of Scholastic Software, 730 Broadway, NY, NY 10003.

If 2 + 3 is always
going to be 5,
why do they keep
teaching it to us?

A first grader

Empowering the Teacher

by David Dockterman

Reprinted with permission from *The Professional Teacher*, the newsletter of Tom Snyder Productions Inc., Educational Software

Let me be among the first thousand or so people to recommend Tracy Kidder's new book *Among Schoolchildren* (Houghton Mifflin, 1989). He truly captures the complexities, the joys, and the frustrations of teaching. You can't help but appreciate and respect the awesome responsibilities accepted by a caring teacher.

The timing of the book is perfect, too, because, as we start a new school year, it helps put things in perspective. Chris Zajac, the fifth grade teacher-heroine of Kidder's book, faces personal insecurities, problem children, neglectful parents, language barriers, and more. What should she do about the child who refuses to do homework? Which children should sit next to each other? What about discipline problems? Managing the complicated social and academic dynamics of a classroom is an awesome task – children from different backgrounds, from broken homes, with differing abilities and attitudes. Never once do you say to yourself, "If only she had a computer..."

False Promises

The computer industry is not alone in promising pre-packaged "solutions" (I hate that term in this industry and all that it implies) to incredibly complex educational problems. Just plug it in and not only will your students learn more, they will have brighter teeth. We should have learned by now that it's not that simple. After all, over the decades we have watched one technology after another parade through the classroom. We've witnessed new math become old math, classrooms without walls turn into classrooms with walls, and open schools transformed back into closed schools. Why should our "new" innovations, particularly computers, be any different?

We have to realize that real "solutions" cannot be purchased in padded cardboard boxes or in sturdy vinyl binders. The issue is really much bigger than interactive technology or writing across the curriculum or whole language education.

Our schools have a long history of pushing

innovation into the classroom without supporting or involving those designated to do the innovating. Who ever asked teachers if they wanted classrooms without walls? As with change in any setting, those at the center of it must be invested in it, whatever "it" is.

Setting the Right Priorities

Part of the problem lies in the fact that we often lose sight of our goals. Technology can help with the goal of improved teaching and learning. It is essential to remember, though, that the computer is only a medium to a larger end. Our (meaning those of us caught up in this "computer revolution") goal is not the proliferation of interactive machinery. It is not more teachers using more computers. Computers will only serve the desired end if they are employed as tools for professional educators.

So, making teachers feel professional (a great use of this technology) may be the most crucial first step in working toward successful change, computer-based or not. Computers will not implement themselves any more than film projectors, open classrooms, or basal textbooks will. Good education comes from good teachers. And that's where our emphasis should be.

Constructive Conclusion

So what am I suggesting here? More training and staff development? Sort of, but not really. We need to do more than just teach teachers how to implement new devices and ideas. After all, our goal is more great teachers, not more teachers who use computers. Besides, demonstrating to teachers how they can develop their own multi-media curricula is pretty much a waste of time if they have little access to equipment and barely enough time to even preview a film. Deeper changes are necessary, both in attitudes and in structure.

Teachers need to feel empowered. They need to be willing, even anxious, to accept new responsibilities for their classrooms and their subject areas. And schools need to support and nourish that kind of professional growth.

I hope that Tracy Kidder's book will help renew or actually stimulate popular respect for teachers. And I hope that teachers will continue to grow to respect themselves. I saw a number of workshops this summer on building self-esteem, not students' but teachers'. The growing commitment in the nation toward professionalizing teaching bodes well.

Confessions of a Maverick Moderate

by Anne Beversdorf

Reprinted with permission from the CUE Newsletter

This is a closet case. Being a moderate is hard to talk about. It's unfashionable, always has been. When folks rave on about the latest in fashion it's embarrassing to say "Why'dja change?" It makes you sound like a fuddy-duddy. No matter what the *latest thing* is, a moderate always seems to be on the other side – the outside, definitely not the "in" side.

But I'm a moderate and I'm an educator and I'm finally ready to talk. Now, I don't *like* being a devil's advocate, but education just has this crazy tendency every few years to throw out the baby with the bathwater. Was it just yesterday that "back to the basics" was the hue and rallying cry? Sure, kids have to know "basics" – but you can't just toss out all the good books and the innovative broad-spectrum curriculum activities and still have good education. But of course, that's exactly what happened. Now we recognize what we lost, but have we learned?

No way. Now we're throwing out the basics and focusing exclusively on concept-based education. I recently heard an administrator from a large California district say "We don't want to teach *any* basic skills!" Slip of the tongue? I hope so. But today the very word "skill" is tainted as everyone jumps on the "conceptual teaching" bandwagon. When are we going to figure it out – that we can't have well-educated kids without addressing BOTH! I have a friend who says he's finally understood the implications of these pendulum swings. By the time he's watched it swing three times, he'll be able to retire!

As computer educators, we aren't immune to educational fads. It's just a little trickier to spot them, because the pendulum swing is disguised by all the changing opportunities presented by technology changes.

In the early eighties the discussion was "What is the appropriate use of the computer in education?" The answer, of course, wasn't an open discussion. The answer was "simulations." We weren't supposed to waste this technology on stupid things like drills. But hang on a minute here...there are some facts it's useful to know by the time you grow up.

Good old boring, basic arithmetic facts, for one. Without a few of these facts at your fingertips you can't even guestimate answers to practical, real-life questions – like if a \$50 shirt is on sale for 20% off, do you have enough money to buy it. Think now – is it better to spend a professional teacher's time on these basic facts or utilize a computer for basic facts and leave the teacher free to foster the child. Who's more valuable – the computer or the teacher? Naturally, this isn't a question that was often considered.

Oh, yes, and we've also watched the rise and fall and phoenix-like rebirth of managed curriculum systems over the past decade. In, then out, then in again, this time with major companies dedicating tremendous sales and marketing budgets to convince us that *their* system has everyone's answers to details we should be handling ourselves – details like, "Is this system teaching *what* we teach that way we *want* to teach it?" And, "What if every teacher teaches with a different approach?"

This time the operant phrase is "Integrated Learning System" – a piece of jargon that I have tried (and failed) to analyze for meaning, *Integrated* with what? (The answer is usually "itself"). What's a Learning System? A system that learns? Kids that learn systems? Or is a student a learning system? Some of these companies claim just using their system will "increase student scores." Wait a minute – shouldn't the teacher have something to do with this? Who's in charge here – teachers and local schools? or some *company* in another state?

The new software buzzword is "tools." As in, "Oh, no. We don't want to do curriculum software. We want to do *tools*."

Hey folks, let's do lunch! Remember when you couldn't get a teacher to even use a database? When it was swimming upstream to suggest how much you could *teach* using a database in social studies; or a word processor in language arts? But why is it that once everyone's sold on something new they all feel compelled to throw out everything old? Is this good modelling for our students? I thought learning, growth, wisdom were based on the

incremental accretion of knowledge – not on denying the validity of each decade's accumulated wisdom. Now that we have good curriculum-based software, let's not throw it out of our planning in our rush to use *HyperCard*, desktop publishing, and increasingly complex productivity tools.

Remember when personal computers were brand new and we all kept hearing, "BASIC is so easy teachers can develop their own software"? Some did – kind of the same way teachers can write their own textbooks, right? Some do, then they stop being teachers.

Now we're hearing, "Interactive Media is so easy that teachers can develop their own programs." Some do. Whadaya wanna bet, that in five years we'll have a good supply of interactive multimedia programs available from software publishers and they'll stop pushing us to write our own. New products are coming out every day now, and they keep getting better – just like plain-old curriculum software did ten years ago.

I think it's time we reopen the old questions: Here are my suggestions for answers.

What is the appropriate use of a computer in education?

A computer should be a tool in the hands of a human being. Human beings include both students and teachers. A computer is only one way for students to learn. Important learning also occurs on the playground, in the sandbox, and with the novels you used to read after bedtime with a flashlight.

What is the appropriate use of a professional teacher's time?

Teachers should be teaching, working with some students one-on-one on a difficult problem, coaching and encouraging each student to find new ways to think about and evaluate the world and its problems, and helping students learn to express themselves clearly and creatively. But teachers are almost unique among professionals in that they are their own

clerical support – spending incredible amounts of time xeroxing paper, grading the answer-is-right-or-wrong quizzes, and doing other non-professional clerical tasks.

What is the appropriate use of a human mind?

Each human being should be provided with the tools necessary to develop a rational, well-thought-out answer to this question as it applies to his or her own life. One of these tools is a good education. "Being educated" implies a strong foundation in factual knowledge as well as the ability to think, decide, ponder, discover, and create, both independently and as part of a group. Without a strong educational foundation, a person is handicapped in the ability to determine the direction and purpose of his or her life. A human mind should be educated to the extent that it is possible to determine his or her own best potential.

So let's think again – *What is the appropriate use of a computer in education?*

A computer should be a treasure chest of creativity tools – *HyperCard*, *Linkway*, *Super Story Tree*, *AppleWorks*, graphics and art programs, music composing programs. My father, who was a composer, scratched away at musical scores, tapping each note out on a piano, imagining what it would sound like as a group of different instruments. What he could have done if he had the tool to enter the notes and instruments and hear them – and edit and change them! Just think what our students can do with this kind of power!

A computer should be the "spoonful of sugar" to help get necessary memory-based facts down pleasantly. Kids have so much fun with *Number Munchers* they hardly realize they're learning arithmetic facts and estimation skills to the point of "automaticity." Computers help students reinforce this type of information more quickly and with more "engagement" than a teacher can. Other curriculum-based software helps students apply

already-learned skills in order to learn new ones. Simulations allow students to role-play, try-out, and experience situations "first hand." Not new news. Not sexy. But tried and true.

Computers should be teacher tools – providing vast data banks for students to search in their own way. *World Geograph* and *USA Geograph*, *Culture* and *Point of View* are full of data and images linked together by the "point of view" of the student researcher.

Computers should be teacher tools – and not only for "gradebook" activities, or for the "letters to parents." Computers should provide alternate learning modes defined by, and aligned specifically to, each teacher's other classroom activities. Computers can and should reinforce and report learning progress on "fact-based" knowledge so teachers can spend grading time on higher-level processes that can't be evaluated by the computer – things like evaluating student progress in creative writing or helping a disturbed youngster learn to evaluate options and consequences of behaviors.

Computers should be used to maximize the potential of teachers as teachers, students as students, and human beings as human beings.

Being moderate isn't very exciting. "I believe a little of this and a little of that" isn't generally good copy. Extremism is exciting. Excess is newsworthy. But the next time someone says to me – "Oh, we're not doing that anymore," I'm not going to stop with "Why not?" When they say, "Because this is the way we're doing it now." I'll say, "But that doesn't tell me why you stopped doing that. What's wrong with doing both? What are your real teaching needs? What do your students need to know? Is any single solution the real answer?"

Anne Beversdorf is president of Beversdorf Associates, an independent software distributorship dedicated to helping teachers and schools select and use classroom-aligned software.

An Investigation of Giftedness in Economically Disadvantaged and Limited English Proficiency Students

by Mary M. Frasier

Despite strong recommendations from scholars and researchers to use multiple criteria when seeking to identify students with extraordinary gifts and talents, an examination of current practices reveals that school districts continue to rely heavily on IQ scores. This practice often keeps disadvantaged, culturally different, bilingual, or minority students from being identified for participation in gifted programs. The first-year project being conducted by the University of Georgia, one of the four universities participating in the National Research Center on the Gifted and Talented, is concerned with this problem. The project will investigate new ways to measure the talents of students from historically underrepresented groups.

Study Assumptions

The study proceeds on the assumption that there are significant numbers of these students who do not meet traditional criteria for gifted programs, but who may possess cognitive, motivation, artistic, or creative potentials that clearly enable them to competently participate in programmatic experiences designed to develop and nurture gifted behaviors. The study proposes (a) to approach the identification of gifted economically disadvantaged (ED) and limited English proficiency (LEP) students from an intensive investigation of gifted behaviors within and across cultural groups; and (b) to examine giftedness in target students by analyzing the development of intellectual processes and functioning within the cultural context of ED and LEP populations; and to extend the theoretical orienta-

tions of earlier researchers who emphasized the need to focus on the strengths in children from diverse cultures if we are to understand their gifts and talents (e.g., Torrance's focus on the creative strengths of black disadvantaged children expressed in his 1977 *Checklist of Creative Positives*, and Bernal's 1974 ethnoscientific perspective on identifying giftedness in Mexican-American children). It is expected that this investigation will lead to the development of a new paradigm that accommodates the differential manifestation of gifted behaviors in ED and LEP student populations.

Target Populations

The target populations will include students who are economically disadvantaged from black, Native American, Hispanic, Asian, and Caucasian groups and limited English proficiency students who are not represented in these groups. Target students will be selected from urban and rural settings.

Research Questions/Data Collection

Research questions to guide data collection include those dealing with the self-perceptions of ability held by these potentially gifted students and their parents; the role that these self-perceptions play in achievement; the nature of significant behavior and performance indicators of potential; the nature of home environments; the method by which conflicts are resolved between the school and home cultures; the manner in which self- and other perceptions affect the nomination of target students; and the relationship between self-reported perceptions of ability and literature citations.

Themes and patterns that emerge will be classified into four broad categories: (a) behavioral and performance indicators of gifted potential;

(b) environmental features, services, and people that support or hinder the development of gifts and talents; (c) familial characteristics that support or discourage achievement; and (d) self-perception data or personal judgments of competency or adequacy. Data will be collected from multiple sources including (a) non-test sources, such as written responses to open-ended questionnaires, in-depth interviews with subjects, interviews with parents, information from school records, and checklists of student behaviors that assess talent potential; and (b) test sources, such as appropriate intelligence and achievement tests, creativity tests, and self-concept tests.

Data Analysis/Profile Development

Qualitative methodologies will primarily be used to analyze data to determine common themes. The resultant theme sheets will be compared and contrasted to reveal similarities and variations in themes. Data will be displayed on the Frasier Talent Assessment Profile, a system designed to facilitate the interpretation of data from test and non-test sources. It is expected that this data will form the basis of an identification paradigm that accommodates the determination of gifts and talents in culturally diverse groups.

Collaborative School Site

Collaborating school districts or target school(s) within a school district are invited to participate in this study if they have the appropriate concentration of target students. Data collection will be conducted on-site in some settings and by survey at others. For further information, contact Dr. Mary M. Frasier, NRC G/T, 320C Aderhold Hall, The University of Georgia, Athens, Georgia 30602; 404/542-4301.

Gail Marshall,
continued from page 1

cabulary and techniques of change, it is even more difficult to be on the outside looking in. Change is too pervasive, too all encompassing to wait for stragglers. Change moves ahead, and, if we don't keep up, we find ourselves cut off from conversation, company, jobs.

Today, at the end of the twentieth century, we're in the midst of new revolutions. We read about the paperless office and hear about the computer classroom. Our first inclination may be to turn away, to reject technology, saying that it is too radical a departure from a long unbroken tradition of schooling which is personal, simple, and rooted in Greek and Roman values which have continued from Socrates to Sesame Street. Using computers seems to depersonalize education. It seems to disconnect a vital teacher-to-student bond that transcends what is to be learned and is, in fact, a microcosm of the ideal society. For many of us a teacher is a role model of the ideal citizen, a counselor, a master craftsman to the students' apprenticeship. What machine can replace the dialogue, the wisdom, the intuition of a teacher? No machine! But does that mean the idea of the computer classroom is an ephemeral idea. Does that mean we reject computers in the classroom? No! The computer is here to stay. It is as much a part of our lives as the combustion engine, the telephone, and the microwave—all inventions that were supposed to be fads. Talk about computers is as pervasive as the Romans' gossip about the colors on the Sistine Chapel ceiling. Bypassing the computer revolution is as likely to induce angst as ignoring the combustion engine.

In fact, the computer is a logical extension of a move toward change that drove our ancestors out of the caves and into the villages. Change is scary. Change is difficult, and change is expensive, not only in terms of dollars, but also in terms of time, ego, and temper. Change is uncertain. Facing a move toward a computerized school environment we rightly ask, "How do I know that my students will still feel a personal connection with learning?" We can also ask whether or not the computer becomes an end in itself. "Does introducing a computer into the classroom mean that Pac Man and not Shakespeare (or Mark Twain or Euclid) reigns supreme?"

Pac Man, arcade games, adventure games and programming tricks already exist for students. The majority of today's students have easy access to video games, personal comput-

ers, CDs, and all the other paraphernalia ordained by the teen culture. Technology is all around today's students. It isn't a matter of locking technology out of the classroom. The Luddites didn't drive out the mechanized looms. Change calls for accommodation, not rage or ennui. Accommodating to classroom-based computing means harnessing the power of the computer to achieve a wide range of goals for today's students.

Once we realize that technology in the form of computers is here to stay, setting goals for that technology becomes the major issue. Just as Newton's discussion of physical laws in the universe didn't automatically transform our world, so planning for classroom change involving computers isn't going to be easy or straight-forward. Setting goals involves a vision, and vision, like the dollars needed to fuel the vision, is in short supply. Many of the technology czars who promote school-based computing have no vision beyond buying and installing computers, and then turning them over to teachers with a "Fare thee well." Those computers can be either an albatross or a life saver. But vision can make the difference between being controlled by computers or harnessing their power to stimulate students.

Your vision doesn't need to include boring, repetitive drill—although many computer classrooms are dedicated to nothing but drill and practice exercises. Your vision needn't be shaped by the thought of a "laboratory" where every student is working on exactly the same task, and scurrying through computer-driven exercises like a rat in a maze. Nor should your vision be limited to a single computer that each student in turn uses for 10 or 15 minutes a day.

An effective application of your vision is to create "microworlds" for your students. If you're working with gifted and talented students and you want to inspire and challenge them, computer microworlds can elevate classroom learning to new dimensions. Imagine a microworld where young students, whose skill with protractor and compass is such that drawing angles and circles is boring and frustrating, instantly create triangles, re-size the triangles, experiment with changing the size of the angle, and then inscribe circles, squares, and other triangles within the triangle. One or two key-strokes on the computer allows students to experiment with space and shape with a flexibility and fluency that even Euclid would envy. Other microworlds let students create their

own Newtonian universe and test the laws of gravity. Just a few keystrokes and speed, acceleration and refraction experiments are under the students' control. Young students as well as older students can work a wide variety of logic problems with the computer as patient a tutor as Socrates.

Cooperative problem solving involving decisions about public policy, space exploration, or energy consumption is possible in the microworld of simulations. Group 2, 10, or 20 students in front of a computer, explain the rules of the microworld, and then watch as students grapple with problems for which easy solutions aren't possible and collaborative brainstorming is essential. Today's computer-using students can access software that puts them directly in touch with scientists conducting research or with students whose culture and traditions are markedly different. Imagine your students telecommunicating with villages in rural Canada, where climate, flora, fauna, language, and curriculum are different from your community's. Consider the possibilities for intellectual growth when your students can access data from a variety of government agencies, analyze the data, and look for trends. Think of the impact on those math whizzes in your class who can telecommunicate and download the Dow Jones quotations daily, and then compute the percentage of change, the rate of growth, and the rate of return on investments.

Gifts and talents come in all forms. Just as everyone in Michelangelo's Rome wasn't an artist and every Englishman wasn't an inventor, so each student comes to school with unique talents. Computer-based music systems can support the development of a young musician's talent. Computerized drawing programs foster an excitement about art. Programs dedicated to spatial reasoning provide a challenge for the pre-engineer. And bringing the hardware and software of today into your classroom makes it possible for your gifted and talented students to get ready for the next revolution because institutionalizing change by accommodating to it makes for flexible, fluent thinkers. Just as most Romans didn't wear eye blinkers to screen out the art being created all around them, our students shouldn't be oblivious to the cognitive growth dimensions fostered by today's microworlds. Just as citizens in the days of the Caesars prided themselves on saying they were citizens of the widest-ranging empire the world had seen, and just as John F. Kennedy's state-

ment that he was a Berliner roused the emotions of the world, our students, all of them, ought to say with pride that they are participants in the technological revolution.

Gail Marshall is a software developer, and also teaches in the Master's degree program for computer-using educators at Fontbonne College, St. Louis, MO

The Illad

Ten bitter years the Trojan War lasted,
To win Helen back from Troy.
The Greeks and Trojans fought non-stop,
Yet out of this came joy.

Achilles and Hector led both armies,
And Troy seemed to be in the lead..
But a big wooden horse
saved the Greeks,
And Troy was punished for its deed.

Odysseus did not sail home
with the Greeks,
Across the big blue sea.
He searched for adventures and
excitement for years,
But that's the Odyssey.

*by Christa Simpson
Grade 7
Sowers Middle School
Huntington Beach CSD
Teacher: Wendy Hayes*

CAG Seeks Assistant Editor for *Communicator*

The position of volunteer Assistant Editor will be open to CAG members. Please send a letter of interest and summary of qualifications to Sharon Mountford, Administrative Assistant, 23684 Schoenborn Street, Canoga Park, CA 91304. Applications will be reviewed and interviews will be scheduled by the Executive Committee and Editor of the *Communicator*.

Job Description

1. To assist the Editor in performing these tasks:
 - determining the focus and theme of each edition of the *Communicator*
 - corresponding with potential authors of articles and working with authors who have committed to write for the publication
 - soliciting manuscripts for the *Communicator*
 - selecting manuscripts
 - editing manuscripts
2. To assume the position of Editor of the *Communicator* when the position becomes available. Note that the Assistant Editor will be considered to be in training for the position of Editor when it is vacant. The Editor is also a volunteer position, but serves as a full member of the Board.

Smithsonian Intern 91

Seniors... Enjoy an exciting summer internship in Washington, DC. The Office of Elementary and Secondary Education at the Smithsonian invites current high school seniors to apply for a summer internship with the museum. The 6-week sessions give students a chance to be involved on an assignment with a Smithsonian professional, spending about 35 hours per week. In addition the interns share their work with others through seminars and have opportunities to explore Washington.

There is a \$550 stipend for living expenses plus housing in a nearby dormitory and transportation to and from Washington, DC, via the least expensive common carrier.

If you are interested, contact the Smithsonian Institution before March 8. That is the deadline for sending out informational packets. Phone 202/357-3049 or 202/357-1696 (telecommunication device for the deaf).

CALENDAR

February 15-17, 1991

CATE Conference
(California Association of Teachers of English)

Los Angeles Airport Marriott Hotel
For information contact Barbara Zussman,
3545 Mound View, Studio City, CA 91604.

March 1-3, 1991

CAG Annual Conference
Gifted Education: A Capital Investment
Sacramento Convention Center
and Hyatt Hotel
For information call 818/888-8846.

April 20-21, 1991

Talent Identification Program at Duke University
Fulfilling the Promise
A conference for parents of gifted children,
Durham, NC
Contact Joy Baldwin, 919/683-1400.

May 9, 1991

Project Open GATE Teleconference
Team and Regional Resource Planning: First Steps Toward a Coalition for Excellence
For information see September *Communicator*.

June 24-29, 1991

Autonomous Learner Model Conference
Estes Park, CO
Contact ALPS, 800-345-ALPS.

July 18-20, 1991

SENG (Supporting Emotional Needs of Gifted) Conference
Perspectives: Views of the Past - Hopes for the Future
Charlotte, NC
Contact Leona Gray, P.O. Box 2745, Dayton, OH 45401.

July 29 - August 2

Ninth World Conference on Gifted and Talented Children
Talent for the Future
The Hague, Holland
For information contact Conference Secretary, P.O. Box 463, 6500 AL Nijmegen, The Netherlands.



Leadership Camp

for 7th and 8th grade students

May 17-19, 1991

Camp Nawakwa

Angelus Oaks, CA

Camp Nawakwa has been the site of CAG's successful leadership camp for the past three years. Located at an altitude of 7000 feet, it is near Big Bear Lake. Complete facilities include 15 cabins, dining hall, and infirmary.

The camp program will be activity-oriented with an emphasis on team building and on the development of personal and group responsibilities. Activities will include drama games, improvisation, a group problem-solving challenge course, New Games, a picnic hike, and a campfire program.

The goal of this week-end camp for seventh- and eighth-grade students is to provide an open, positive, and supportive atmosphere designed to enhance self-esteem, communication abilities, and leadership skills.

Bus transportation will be provided from the Redlands and Montebello areas to the camp. Details regarding bus transportation, medical release forms, and suggested gear will be mailed to registrants.

The cost for this program, including bus transportation as noted above, is \$85.

A limited number of campships is available.

Attach a letter outlining family need if applying for a campship.

Please complete this registration form and mail by April 19 to:

CAG, 23684 Schoenborn Street, Canoga Park, CA 91304.

Questions may be directed to the CAG office at 818/888-8846

or to the camp director Barbara Nelson at 619-379-4289.

Name (for name tag and roster) _____

Address _____

City/State _____ Zip code _____

Phone () _____ Age _____ Sex _____ Grade: 7 8

School _____ Principal _____

Please indicate desired bus pickup ☐ Montebello or ☐ Redlands.

Conditions and provisions:

- The camp is for students who are gifted, rapid learners, high achievers, or capable underachievers.

- No discipline problems will be tolerated. Failure to follow rules of the camp will result in the student being sent home, with the parent required to provide transportation.

Payment enclosed:

Check # _____

Charge card information:

Visa _____ Mastercard _____ Exp. Date _____

Number _____

Signature of cardholder _____

Please attach a letter if there are special dietary or medical needs for this student.

Signature of camper

Signature of parent or guardian

MEMBERSHIP APPLICATION

Please share this copy of the *Communicator* with a friend when you have finished reading it. He or she might like to use this form to become a CAG member and active supporter of gifted education. Because of CAG's role in lobbying for appropriate education for gifted and talented students, dues payments to CAG are not tax deductible as charitable contributions for Federal income tax purposes.

Name: _____
Last First Middle Initial

Region: _____

Preferred address: _____
Street address or PO Box

Code: _____

City _____ State _____ Zip code _____ County (not country) _____

Phones, home: (_____) _____ Work: (_____) _____ Affiliation: _____
(school district of employment or attendance)

Membership/ Service Category: Outside the USA, please add \$5 for increased postage costs.

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Gifted Education: A Capitol Investment Snapshots from Sacramento



On tour to the classrooms



KQED radio reporter Patrick Cox interviews Burbank High School news reporter Jahahalele Artlip



Hamming it up at the Mystery Dinner



Youth conferee explains her work



Thanks and congratulations to the 1991 Conference Committee for a job well done! Part of the committee is shown here at a post-conference meeting.

Standing, from left: Lorraine Fort, Jackie Linn, Sharon Mountford, Karen Hostttler, Barry Ziff, and Barbara La Placa; Seated: Linda Loftus, Ray Simpson (Chair) and Jo Anne Viserta-Galinis



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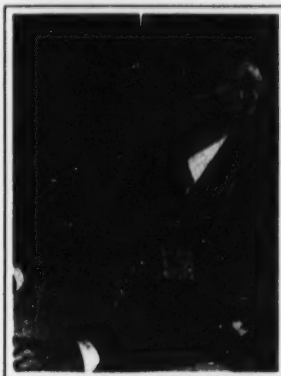
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Snapshot from Sacramento



Sunday luncheon Speaker George Leonard,
autographing books

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CAG encourages all interested parties to submit articles for publication. All submissions will be given careful consideration. Photos and camera-ready art work are particularly desirable. Send all material with your name, address, and phone number to Jody Hess, Editor, 5430 West 138th Street, Hawthorne, CA 90250; 213/643-7426.

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CALENDAR

May 9, 1991

Project Open GATE Teleconference
Team and Regional Resource Planning: First Steps Toward a Coalition for Excellence
 For information see September *Communicator*.

June 24-29, 1991

Autonomous Learner Model Conference
 Estes Park, CO
 Contact ALPS, 800/345-ALPS.

July 15-26, 1991

Confratute '91, Summer Institute on the Gifted and Talented
 University of Connecticut
 For information contact 203/486-3231.

July 18-20, 1991

SENG (Supporting Emotional Needs of Gifted) Conference
Perspectives: Views of the Past - Hopes for the Future
 Charlotte, NC
 Contact Leona Gray, P.O. Box 2745, Dayton, OH 45401.

July 29 - August 2, 1991

Ninth World Conference on Gifted and Talented Children
Talent for the Future
 The Hague, Holland
 For information contact Conference Secretary, P.O. Box 463, 6500 AL Nijmegen, The Netherlands.

August 4-7, 1991;

Preconference workshops - August 2-3, 1991
Conference on Critical Thinking and Educational Reform
Teaching Students Intellectual Standards...
 Sonoma State University, Rohnert Park, CA
 For information call 707/664-2940.

February 21-23, 1992

30th Annual CAG Conference
 Long Beach, CA
 Brochures available in the Fall.

PRESIDENT'S COLUMN

Currently there is a national emphasis on identifying students from underrepresented populations for gifted programs. Recognition of the need to identify as gifted, students in geographically isolated areas, from economically disadvantaged populations, and among varied ethnic and cultural groups is commendable. However, the identification and subsequent placement of students in a gifted program addresses only one aspect of the problem confronting members of underrepresented populations.

An increasing concern is helping these newly identified students *sustain* their involvement in the gifted program for which they have been identified. Identification for a gifted program is of little value unless students can be assisted to develop their affiliation with their giftedness and the gifted program.

The issue of elitism continually hovers around gifted programs. Although in some cases cries of elitism cite organizational structures and activities that may warrant such ire, there are sufficient examples where the expressions of elitism are related directly to the quality rather than the practices of a gifted program.

The question emerges as to whether quality and elitism are interdependent. Certainly the coexistence of these factors is prevalent in the consumer world wherein the quality of a product is associated with an elitist perception of those who have such a product. Is it possible that in many ways we have confused comments of elitism with a consumer envy of the qualities of a gifted program? Many educators and parents have remarked that the negative reactions to the gifted program increased as the quality of the program improved.

We need to develop curricular and programmatic opportunities and strategies that enable those qualities admired and sought in gifted programs to spill over and affect education for other than gifted learners. It is paramount to the survival of gifted education and a necessary contribution we can make to general education.



Sandra Kaplan

THE VIEW FROM SACRAMENTO

by Barbara Brandes

These are troubled times, fiscally, for all of us involved in education. The news regularly contains ever more dismal projections of the state revenue shortfalls that translate into much less money than is needed for schools to keep pace with inflation and with expanding enrollment. Whatever decisions state policymakers make in finalizing a new state budget by early summer, we know that the result will be painful at all levels. Most school districts are struggling with difficult decisions that involve elimination of staff positions. Staffing for GATE programs is being affected by these decisions along with virtually every other aspect of school programs. I feel sad and concerned when I hear of district decisions to reduce or eliminate GATE staff positions. Many of the individuals directly affected by these decisions have given distinguished service to GATE. There is also the issue of effective leadership and continuity for GATE programs. These decisions to reduce staffing are more difficult than ever to fight because the fiscal constraints are very real, and GATE is by no means alone in bearing the brunt.

It is essential during any crisis to look realistically at the present situation, to estimate likely future events as accurately as possible, and then to act strategically to accomplish whatever we can. I want to share with you what is happening at the state level relative to GATE and my assessment of how we can best weather our current crisis.

First, a look at the present situation in the California Department of Education (CDE). As many of you know, virtually all travel and other discretionary expenditures of state monies by CDE staff have been eliminated, at least for the remainder of the current school year. This travel freeze means that our state GATE staff are not able to

attend regional meetings and conferences. Our staff, of course, continue to be available for consultation by telephone, but are currently directing efforts toward projects that can be accomplished without travel, including a survey of GATE programs being operated under School-Based Coordinated Programs, the design of workshops on several topics, and improvement of our computer data base on GATE. With regard to the GATE data base, we will be sending out the forms for a 1991-92 GATE Application Data Update in early May. Although all GATE-funded districts have approved applications through 1992-92, we need this annual information to portray trends in GATE services and expenditures.

My estimate of likely future events that will affect resources for GATE includes a brief look at GATE allocations for school districts during 1991-92 and at resources for the CDE GATE Unit. The \$2 million proposed augmentation for GATE is still in the Budget Bill as of this writing. This augmentation is, of course, for the purpose of ensuring that GATE districts which are new to the program will be fully funded under the formula. All of this is certainly subject to change during budget negotiations, but my best guess at this moment is that GATE allocations for 1991-92 will be at or near the same level as for the current year. Insofar as the CDE GATE Unit is concerned, Department-wide staff and other resource reductions will continue to constrain our capacity to provide the type of staff development and technical assistance that is needed. It is likely that most state agencies will effect a permanent reduction of staff positions through early retirement incentives. Such re-

ductions would necessitate some re-prioritizing of CDE responsibilities and realignment of staff assignments. Of course, all of this is speculation at this point, but a prudent view of the next year or two suggests that we should expect to have fewer state resources for providing leadership and assistance.

When it comes to planning strategically for what can be accomplished during these tough times, we must ensure that GATE services for students are maintained and that we work effectively to keep advanced learning opportunities in place. We are fortunate to have an important resource for staff development through the Jacob Javits project, *Building a Coalition for Excellence: Project Open GATE*. Having established the satellite teleconference and extended day activities as a cost-effective means of providing statewide staff development, we will utilize two additional teleconferences during 1991-92. Topics of the teleconferences will include high-level differentiated curriculum with an emphasis on interdisciplinary instruction for students at the elementary and middle school levels. We look forward to working collaboratively with teachers, curriculum specialists, and categorical program staff to keep a focus on excellence and advanced learning opportunities during these difficult times so that we can continue to promote challenging curriculum for students.

Barbara Brandes is the Manager, Office of Special Programs, California State Department of Education, which oversees the GATE program.

AWARDS PRESENTED AT CONFERENCE



The Ruth A. Martinson Past-Presidents' Award was presented to Judith Roseberry at the Sunday luncheon. Judy is currently an elementary school principal in Garden Grove USD. She served that district as Coordinator of Gifted and Talented Programs for several years. She is well known throughout the gifted education community as an engaging and practical speaker who can address the needs of children, the roles of parents, and the programs of schools with equal facility.

CAG has benefitted for many years from Judy's unstinting efforts as President, Treasurer, and in many other roles, serving wherever her considerable talents were required.

The award is given in recognition of outstanding contributions to the field of gifted education by someone who has worked in California.



Assemblyman Jack O'Connell was recognized on Friday evening with an Award of Recognition. Jack was an educator before entering the political arena and this background makes him a strong ally for those of us who are interested in quality education.

Jack authored legislation last term which resulted in the expansion of the GATE program to unserved districts. He is interested in GATE programs and champions them whenever possible. He is accessible to his constituents, attending meetings in the region and being a visible advocate for education programs.

The GATE community thanks you, Jack, for all of your support and encouragement.



Marge Hctor was given an Award of Recognition at the Saturday luncheon. Marge has served on the CAG Board in several capacities. She is currently in charge of outreach to other organizations and to CAG's affiliates. She began TechNet as the Technology in Education Chair two years ago.

Marge works as a Media Specialist in the Garden Grove USD.



A student grant was awarded to 13-year-old Christopher Weber, of Meadow Vista. He will undertake a project to demonstrate a practical plan for a maglev (magnetic levitation) train system for California. His grant will supply building materials, source books, transportation to the CSUS library for research, phone bills for interviews, etc. We look forward to seeing his results.



Shondi Lottie, 17, of Los Angeles is a senior at Washington High School. She is a compulsive and talented writer. Her reams of poetry, essays, and stories fill cartons in a shed in her backyard. Shondi will use her student grant to purchase a word processor to prepare her writings for publication. It will also purchase some books and a class enrollment. Perhaps her work will grace these pages.

Letter from Assemblyman Jack O'Connell

Thank you very much for the award and recognition I received from the GATE community in Sacramento last Friday evening. Please extend to your Board of Directors my appreciation for this beautiful award. As you know, I enjoyed working with you in expanding the GATE program.

Thanks again for the thoughtful recognition. I look forward to continuing our close working relationship.

Best regards,
Jack O'Connell

A Capitol Investment: 1991 Conference Evaluations

by Linda Loftus

We would like to share the results of the 1991 CAG Conference evaluation with you to let you know not only that someone actually did read the forms, but also that we appreciate your time and effort in providing us with information that will help us improve the quality of our conference.

Of the 1943 conference attendees, 555 turned in their evaluation forms. From the information provided by the returned evaluations 67% of our attendees are teachers, 14% are parents, 14% are administrators, 2% are counselors, and 4% indicated they were "other." On length of involvement in gifted and talented education, 35% said one to two years; 18% three to five years; and 46% had been involved in gifted and talented education more than five years. This year there was a larger percentage of parents in attendance, more attendees of one to two years, and more primary teachers.

The combined overall rating of all Workshops for Quality of Content was 3.40 and Usefulness to You was 3.27. (All ratings are on a scale of 4=high and 1=low), which indicates we met the needs of our attendees. There was surprising consistency of rating regardless of length of involvement in gifted education, job description, or grade level. Every special interest group felt there weren't enough workshops in their area, i.e. primary teachers felt there weren't enough workshops for primary teachers, high school teachers felt there weren't enough secondary workshops, etc. However, the problem may be one of identifying appropriate sessions, rather than a lack of sessions.

The Classroom visitations were given an overall rating of 3.45 for Programs Visited and 3.24 for Appropriateness for You from the 88 evaluation that were returned.

The conference facilities were rated at 3.47. As many of you mentioned, an on-going problem for CAG conferences has been that many of the workshop rooms were too small for the number of attendees. It is not easy



Giving due consideration

to predict which workshop sessions will draw the most number of attendees and allot rooms accordingly. We had hoped to alleviate this problem by setting out 600 more chairs than people in attendance. Also, please be aware that many of the presenters refused to work in large rooms. Be assured that the 1992 conference committee is aware of this problem and it is one of their top priorities.

Hotel accommodations and the hotel registration rates varied according to the individual hotels used. Overall, Accommodation were rated at 3.38 and Hotel Registration were 3.31. The CAG conference committee has shared this information with the hotels and hope they will use the information constructively. Again, the conference committee will work on smoothing the hotel registration process.

Many people asked why the Exhibits (rated at 3.23) were not open

longer hours or open on Sunday. The schedule was at the request of the exhibitors. However, this may change since many of the evaluation from the exhibitors themselves noted that they were losing business because they closed early. The conference committee is also looking at the possibility of having longer breaks between sessions to allow attendees time to browse through the exhibits.

The process of Evaluation of the Conference was rated 3.59. We will probably continue to use a similar planning and evaluation form in the middle of the program booklet, as we now have four years of data on workshop presentations.

Conventions in America received a 3.43 rating; the Shuttle Service a 3.22 rating; and the Youth Conference a 3.45 rating.

The Mystery Dinner received a 3.69 rating. At this point the committee is planning to have another mystery dinner for attendees as well as many other special events for attendees to choose from.

Student Entertainment was rated at 3.36. Many of the evaluations said that the students were wonderful but wished we had left the luncheon times for participants to talk with each other. With this in mind, next year's student entertainment will be linked with workshop presentations on visual and performing arts curricula.

The list of topics that attendees would like to see at next year's conference in Long Beach is being compiled and will be used by the conference committee in their selection of workshops.

Again thanks to those of you who took the time to fill out the evaluations. The CAG Board is always interested in the ideas, thoughts, and suggestions of all CAG members!

The Gifted Underachiever...Another Look

by Linda J. Emerick

This article was submitted by the author and previously appeared in Preventing School Failure, Fall 1989.

"Alan is exceptionally bright – no one can deny that. He works very hard but only on his own interests. And these interest have little to do with school! He spends a lot of time avoiding assignments in school, and his work is sloppy and full of careless errors. He seems unhappy with the situation but doesn't care enough to do anything about it. This is so frustrating! Something has to change!"

"It's agony to watch Emily do her homework. She comes home and dawdles over her assignments. She appears to be concentrating, but it may take her an hour to write two sentences! She gets angry if her father or I try to help or move her along at a faster pace. Her grades have begun to drop, especially in science; we're afraid this is just the beginning and that her poor performance will spread to other areas. She doesn't like school anymore."

"Jason has been in my class for 5 months, and he always seems to be in a world of his own. He simply doesn't apply himself, and several assignments are missing – as usual. His parents are at their wits' end, too. We've tried everything – punishment, rewards, reasoning – and nothing works. All he wants to do is watch TV and doodle in his books. I don't know if he isn't trying or just doesn't have the ability to keep up."

The anger and disappointment expressed in these comments are typical of the frustration that results when bright students are not successful in school. Alan, Emily, Jason, and others like them represent a phenomenon that continues to puzzle parents and educators – the gifted underachiever. Often described as lazy, manipulative, or irresponsible, bright underachievers find themselves in what Emily describes as "a war on two fronts – battles at home, battles at school." In some instances, as in Jason's case, underachievement can mask or disguise indicators of exceptional ability, resulting in the strengths and talents of the student being overlooked or ignored. Very often, we see efforts to reverse the underachievement pattern ending with limited success or even failure. But is this negative image of the gifted underachiever valid or helpful in reversing the

underachievement pattern?

Alan, Emily, and Jason are success stories. They represent those gifted underachievers who, after years of school failure, not only found success in school but also experienced joy of learning, both in school and out. Work with gifted underachievers like Alan, Emily, and Jason, who have successfully reversed the underachievement pattern, indicates that a limited view of the gifted underachiever and the underachievement pattern may also limit our understanding of how best to help these students (Emerick, 1988). To help us gain new perspectives regarding this issue, there are several points we may wish to consider.

Underachievement:

More Than a Matter of Grades

Traditionally, the gifted underachiever has been defined as a child who cannot or will not perform at a level of academic achievement commensurate with the indicators of his or her ability (Fine, 1967; Gowan, 1955). Concern for poor test scores and grades in school are valid in that below-average academic performance can result in deficit skills and limited options for the future. However, poor performance in school represents only part of our concern for the gifted underachiever. Giftedness has been described as consisting of those behaviors that reflect interactions among three clusters of human traits: above-average general or specific abilities, high levels of task commitment, and high levels of creativity. The gifted child is one who possesses or is capable of developing this set of traits and "applying them to any potentially valuable area of human performance" (Renzulli, 1986). When these traits act in conjunction with each other, gifted behavior results. It is hoped that children of high potential will become creative producers, capable of generating new ideas and knowledge and able to undertake new, advanced endeavors.

E. Paul Torrance (1965) states that it is "the loss of the will to learn" that characterizes the plight of the gifted underachiever. Our concern, therefore must be for more than measures of academic performance: it must be for the degree

to which a gifted child has lost the will to learn both outside and inside the classroom. As long as the will has not been extinguished, there is the hope of creating a learning environment in which the student can excel.

The Gifted Underachiever: More Than a Problem

In the fifth grade, Alan went to the public library and checked out copies of the high school geometry text. At home in his bedroom, he started with the first chapter and slowly worked his way through the exercises in the book. When certain concepts were difficult to understand, he called the local high school, seeking help from members of the math department. With his questions answered, he continued to work his way through the entire text. He returned to the library and began working through the high school physics text. Alan was failing fifth grade math during this period of time as a result of inconsistent test scores and repeatedly missed assignments.

The discouragement that results from teaching or living with a gifted underachiever is understandable. After all, students like Alan obviously have ability but are not applying themselves to school-related learning. However, the tension and desire to place blame that often surrounds the underachievement situation may cause us to forget that the gifted underachiever is indeed gifted as well as underachieving. Very often, the characteristics and traits that distinguish the independent learner with high potential are evident in the underachiever if we are willing to look beyond the academic problems that are involved.

Recognizing the gifted underachiever as more than a problem is helpful in a number of ways. First, acknowledging the task commitment, independence, advanced abilities and desire to learn that are evident encourages us to see the student's strengths. This helps to minimize the negative attitudes that further lower the underachiever's self-esteem and that can lead to completely extinguishing the will to learn in any situation. Second, recognition of the positive characteristics exhibited by the underachiever helps us determine how best to meet his or her educational needs, thereby beginning the reversal process. When Alan's parents and teachers looked beyond his poor school performance to the learning characteristics he displayed at home, provisions were made to allow him to become involved in ad-

vanced math studies at the local junior high school. Academic progress soon followed.

The School: Catalyst for Change

Seeing the gifted underachiever as more than a problem leads to other considerations regarding the underachievement pattern. According to Jason, "You have to attack what makes the children gifted and what makes them talented and apply that area in the classroom, and the students will excel beyond belief."

As described earlier, Jason did indeed watch a great deal of television, especially soap operas, while he was performing poorly in academic areas in school. Little wonder his teachers and parents believed he might not be capable of learning. But Jason had a "secret life" – he wrote plays and musicals. From an early age, Jason had watched television to "learn more about what motivated characters and to learn about dialogue." He wrote his first musical in fourth grade, and it was later performed by the high school drama club.

In instances where gifted underachievers display a love a learning and gifted behavior outside the classroom, we must take a close look at the school environment and curriculum. The question we must ask is this: Why does the student not see the classroom as a place where this kind of learning experience can occur? Why is this kind of gifted behavior not being exhibited in school? In some instances of underachievement, the classroom is the only area where underachievement is occurring.

Fortunately, with the help of an understanding and dynamic teacher, Jason was able to make the connection between learning, his strengths and interests, and the classroom. Once his abilities were recognized, they were incorporated into the language arts and literature classes he was taking. For the first time Jason found himself participating in class discussions and being successful in an academic area. The positive influence of this classroom experience spread to other subjects such as math and science, which were not Jason's favorites.

It has been a common idea that the reversal of the underachievement pattern hinges on changes occurring in the child. However, in instances where the underachiever exhibits gifted behavior of an academic and creative nature outside the classroom, changes in the curriculum may be the most effective means for promoting school success.

Expectation for Improvement: Reexamining the Reversal of the Underachievement Pattern

Research related to interventions for the reversal of the underachievement pattern among the gifted is filled with more examples of failure than success. Students who have established patterns of poor performance in school do not leap suddenly from grades of C, D, and F to finding personal fulfillment in the classroom. Investigations of underachievers who have reversed the underachievement pattern indicate that the reversal process is lengthy and seldom accomplished initially by steady progress. For this reason, we may often miss indications that improvements may actually be taking place.

By the time he was in middle school, Alan's experiences in school could only be described as negative and unhappy. Not only was he performing poorly academically, he was often involved in angry confrontations with teachers, administrators, and other students. The underachievement pattern had turned him into a frustrated and depressed young man. The reversal process, however, was taking place even while this situation occurred. As with many underachievers, a variety of factors were coming into play to begin the slow process. First, Alan's curriculum was modified to meet his exceptional needs in the area of math. The first sign of improvement was a slowly awakening eagerness to attend class in this area. Next, a history teacher with a common interest in computers encouraged Alan to start a computer club to give him the social contact with other students he needed so much. This personal interest, as well as the unswerving support of his parents, enabled Alan to feel better about himself and provided the means by which he could have some control over the underachievement situation. Although his grades did not improve immediately, there were definite indications that both the school and Alan were making the changes necessary to better meet his educational needs.

Reversing the underachievement pattern entails being realistic and optimistic about signs of improvement. A better attitude, the development of effective strategies for coping, and evidence of sustained interest in learning are signs that the reversal process has begun. Improvements in grades may follow at a slower pace.

Perceptions of the Underachiever: A Key to Reversal

When Emily began to not complete assignments, her teachers and parents assumed a variety of causes: she was not able to concentrate, she was lazy, she was being "passive resistant," she lacked ability in science. Accordingly, a variety of intervention measures were taken, based on these assumptions. Not surprisingly, none of these seemed to help Emily or her situation. The reason was simple – no one had bothered to discover Emily's perceptions regarding her education and, in particular, her performance in science.

Interviews with gifted underachievers who have reversed the underachievement pattern indicate that regardless of *our* reality of their situation, the only way in which we can explain their behavior is to have a clear understanding of *their* reality (Barrit, Bleeker, Beekman, & Mulderij, 1985). Emily did not perceive herself as being lazy or a poor science student. In fact, just the opposite was occurring – she was trying to be a perfect student. As with many gifted children, she had perceived very early that family and teachers were happy and proud when she performed well academically. To maintain this happiness, she felt it was her responsibility to be perfect because undoubtedly perfection would result in increased pride on the part of everyone. Unfortunately, Emily also became very aware that the odds were against her being able to always achieve perfection. She began to work more slowly on her assignments in an attempt to catch the slightest mistake before it occurred. Science was more of a challenge for her, and she ground to a halt when trying to complete assignments for that class. Her desire for perfection resulted in a tremendous fear of writing anything – words committed to paper might be wrong.

Awareness of Emily's perceptions led to the modification of a number of factors to help her succeed in school. First, there was a more optimistic attitude regarding the reasons for her poor performance in school. Second, experimentation was stressed in the science class. This provided opportunities for all the students to "mess around" with science and to see the positive role of mistakes in the learning process. Finally, pressure to achieve was reduced on the part of Emily's parents and teachers, and efforts were made to explain that pride in her achievements did not mean their imperfection was not tolerated. As Emily states, she is

"personally working on my perfectionism, too. It's something I'll always have to deal with probably."

Taking the time and making the effort to understand the student's perceptions related to the underachievement pattern and its reversal is also helpful in helping the student become part of the reversal process. Alan, Emily, Jason, and the other underachievers who had reversed the pattern had each played a role in helping to determine the strategies and changes that would be effective in making school a place of learning for them. This active involvement on the part of the underachiever seems to be crucial in helping us determine how best to meet his or her educational needs.

Conclusion

There is no typical underachiever. The efforts of many experts in the field of gifted education have helped us realize that each instance of underachievement may be unique in the factors that contribute to it, the characteristics of the child involved, and the factors that will aid in the reversal of the pattern (Rimm, 1986; Whitmore, 1980). Although not all gifted underachievers may be like Alan, Emily, and Jason, they are representative of many bright students who are well skilled as independent learners but are not skilled as classroom students. Taking another look at the underachiever and his or her academic situation, seeking out those indicators of strengths and abilities that may not be evident at first glance, and recognizing evidence of a sustained will to learn will enable us to gain the objectivity and positive attitude necessary to help reverse the underachievement pattern.

SAGE members tour
Capitol



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Linda Emerick is assistant professor of graduate programs in education, human development, and professional psychology at the University of St. Thomas in St. Paul, Minnesota.

SAGE Launched

SAGE, Student Advocates for Gifted Education, began taking shape at the recent annual CAG conference. Twenty-one students in grades six through twelve and their advisors were invited to Sacramento to meet and discuss issues of importance to them in gifted education. Ideas ranged from the ideal educational system for the gifted to exploring ways to advocate for gifted education. We look forward to meaningful involvement by young people as the Student Board members develop their agenda for action.

For more information about SAGE, contact Sharon Russell, at 818/597-0742.

T E C H N E T

English-Language Arts With Technology Enhancement

By Sharon Lynn Blakely, Project Director
Ocean View School District, Huntington Beach, CA

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Project FUTURE Is a Middle School Language Arts/Technology Project located in Orange County, in the Ocean View School District. Its two-year development was funded by the Educational Technology Local Assistance Program of the California State Department of Education. This project involves the seventh and eighth grade population of nearly 300 students at Crest View School, a kindergarten through eighth grade school site. The school community is ethnically diverse, serving Caucasian, Asian, and a 50% Hispanic student population. Socio-economically, the school attendance area ranges from lower to lower-middle income families.

The purpose of Project FUTURE is to enhance student learning through language arts curriculum which reflects State of California curriculum reform guidelines and exemplifies effective use of current technologies. The English-Language Arts Framework clearly indicates the direction for this subject area: a literature-based program which exposes all students to significant works and includes all dimensions of language – listening, speaking, reading, and writing – integrated into instruction across the curriculum. Students use computers, laserdisc players, VCRs, camcorders, liquid crystal display panels, modems, CD-ROM, and cameras to enhance meaning-based instruction. A networked writing lab allows full class access for core writing activities.

The Writing Lab

Seventh and eighth grade students at Crest View School are becoming a community of writers. A fully functioning writing lab accommodates every student for writing instruction

linked to classroom instruction. Students are scheduled twice weekly on concurrent days through literature/language arts core classes. Science and social studies classrooms use this lab as well. The lab is used to extend curriculum-related writing activities.

The success of this lab, in full use throughout the school day, is due to careful planning and adequate staffing. A fully credentialed language arts teacher, paid for out of Chapter I funds, plans instructional lab activities with classroom teachers prior to lab use. Teachers then accompany classes to the lab, and participate fully in lab activities. In addition, a bilingual aide is available to assist students with technical and writing needs. Each stage of the writing process can be accommodated within this lab. Prewriting and precomposing is done within the lab (as well as the classroom) through the use of a large, white markerboard and a liquid crystal display panel. As ideas for writing and the elements of form are discussed in whole and small group situations, students, seated at computers, often take notes or record personal ideas.

Drafting from notes or classroom-generated text is a major function within a lab setting. The same word processing program is available for classroom computer use.

The newest effort within our lab is attention to the response and revision phases of the writing process. Hard copies of printed drafts, printed in triple space, allow students to examine their own and others' writing off line following time in the lab. The Crest View teaching staff has been exploring response and revision activities within the lab setting as well. Two strategies seem to be yielding positive results: (1) as students finish drafting work,

those ready for response conference individually with one of three adults present: the classroom teacher, the lab teacher, or a bilingual aide. (2) to provide opportunity for peer response, students work in pairs with adjacent computer users. Listening and responding to work on-screen read aloud by its author, partners offer feedback based upon prepared rubrics. Revision immediately follows the feedback and written work is then further examined as desired.

Editing is technologically supported by the use of a spell checker. This software feature is most helpful to visual learners. The on-screen thesaurus provided by the word processing programs we use allows easy access to a wider word choice. Both of these features are used independently by students during revision.

Postwriting/publishing in the lab is in its infancy. Final written products, once cleanly typed in double space single font writing pieces, are undergoing dramatic expansion. With the increasing word processor compatibility and increasing access to graphics software, students are generating products in a growing variety of forms: newsletter, report, diary, story, advertisement, and more; accompanied by creative graphic support. Perhaps the most exciting addition is presentational communication — illustration within and around the body of text or by itself. For second-language learners presentational expression is often the first written response we receive.

Literature Study Using Technology

Core pieces of literature are studied by all students in double-period literature/language arts classrooms. Teacher time is provided by Project FUTURE for staff to collaboratively plan core units, and include appropriate technology assistance. Each core literature study contains at least one extended writing assignment using a California Assessment Program (CAP) discourse. Much of this writing is carried out in the writing lab. Camcorders, operated by students, record student presentations (i.e. reader's theatre, hot seat, tableau) developed within these studies. Technology use allows feedback for self and peer assessment. One computer per class is used daily by individuals according to need. Classroom brainstorming, whole-class examination of

written thought, is enhanced by the use of liquid crystal display panels. Often students record emerging ideas, leaving the teacher freer to facilitate discussion. Student Polaroid camera use captures subject matter for writing. Videotape and laserdisc players are available for related video and disc use.

Recreational reading is accompanied by student-prepared oral book talks which develop oral communication skills and allow students to share with others favorite personal reading selections. Computers, audio tape players, and camcorders are used in preparation, recording, and assessment of these activities.

Services

Project FUTURE invites visitation by elementary and middle school personnel to view this process in action. Staff development services are also available both on and off-site to interested parties. This project provides a state-approved model of framework-aligned curriculum using technology for adaption by AB 1470 grant recipients and works in conjunction with the California Literature Project. Teacher training products are available with teacher training services.

For more information please contact: Sharon Blakely, Project Director 714/841-6117; Crest View School, 18052 Lisa Lane, Huntington Beach, CA 92646.

Sharon Blakely, a teacher for 25 years in grades 1-8 and adult education, formerly directed Let's Talk Computers in Writing, a California State Dissemination Grant model for AB B03 adoption. She is the author of Let's Talk Computers and Let's Talk Computers in Writing, teacher training manuals, and is a California Literature Project Fellow.

I'd rather know
some of the questions
than all of the answers.

James Thurber

THE CALL OF THE WILD: THEME ANALYSIS

A lesson plan submitted by:
Todd H. Bellinger
8th Language-History Teacher
Twin Hills Middle School
Sebastopol, CA

Teacher prep time: Minimal!
Lesson time: 3-4 weeks
Environment: Classroom & Computer Lab
Computer Requirements: Apple IIe or compatible
Software: Timeliner, Appleworks
Magic Slate SpellChecker

Curricular Area: U.S. History/Language Arts

Grade Level: 8th

Objective: Synthesis of Literary Elements (plot, character, setting) to support the theme "Survival Strengths Are Both Inherited and Learned"

Day 1: INTO: Discuss with students instances in which personal strength permitted success

Ex: *What does it take to ask someone to "go with you?"
What strengths were required to say "No." when your friend suggested
that you do something you knew was wrong?*

Students dramatize events, both positive and negative, which had a powerful impact upon their lives.

Ex: *A death in the family
Finally standing up to a bully*

Discuss the effects of these above experiences.

Students begin reading Jack London's *The Call of the Wild*

Days 2-15 THROUGH: As students read they use word processor to list and describe events important in shaping Buck's life. Students should include the page number of each event listed.

Days 16-21 BEYOND: 1. Using *Timeliner* create a timeline of the 5-7 events chosen as significant in Buck's survival. Print the timeline, illustrating each event.
2. Write an essay of thematic analysis using the 5-7 events as learning experiences which contribute to Buck's survival and success. Quote the author to support your arguments.

Snapshots from Sacramento



Left: Listening to the students



Above: The Potpourri Booth manned by 1990 CAG Student Grant winner David Osteen and his partner Marc Wright



At a school site



A sea of conferees at lunch

CALENDAR OF EVENTS

SPRING CUE CONFERENCE

PALM SPRINGS, CALIFORNIA

MAY 10 and 11, 1991

For conference information write to:
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4655 Old Ironsides Drive, Suite 200
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Let us know about technology conferences in your area. Information should be received two to three months before the conference date.

Share your Projects, Questions, Ideas ...

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TECH NET
c/o Marge Hocter
302 Enero
Newport Beach, CA 92660

Product Information

Inclusion of names or descriptions of software and/or hardware products in this publication is for information only. It does not imply endorsement by TechNet editors or the California Association for the Gifted.

Timeliner, the software mentioned in the lesson plan can be obtained from:

Tom Snyder Productions
90 Sherman Street
Cambridge, MA 02140
800/342-0236

Technology Committee

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Developing Gifted Potential in Underserved Populations

by Elinor Ruth Smith

One issue which must be addressed if there are to be any long-term solutions to the underrepresentation of certain populations in programs for the gifted is the quality of educational services we provide for these students. While it is clear that other areas such as testing and assessment, definitions of giftedness, and criteria for identification are all of significance, I believe that we need to focus more attention on approaches which can compensate for, correct, and overcome some of the conditions which underlie the underrepresentation.

Specifically, I suggest that we systematically and purposefully create classroom and school environments which are more thought-provoking, demanding and at the same time more nurturing and validating in order to evoke and develop the gifted potential which goes undiscovered and untapped in some of our students. By doing so, we will also be improving the quality of education for all students and providing teachers with additional or alternative approaches for cultivating student abilities.

An example of this approach is San Diego City Schools' Developing Gifted Potential Project, a venture which I undertook as a consultant to the district's gifted program, with the help of some of the program's resource staff. The project, still a work in progress, was created as an additional strategy aimed at providing equal access to programs for the gifted for San Diego's economically, ethnically, and linguistically diverse populations.

Dr. David Hermanson, administrator of San Diego's Gifted Program, had earlier initiated several approaches which continue today to be successful in finding and serving achieving students from diverse populations. These included institution of a central nomination process, the opening of gifted centers in targeted schools, certification of additional teachers of the gifted with an emphasis on bilingual teachers and those from diverse racial/ethnic backgrounds, and an experimental identification project for 8th-grade students.

The results over time of one of these approaches, central office nomination for gifted screening of students with high achievement

test scores, showed that the potential of many of these students was not being recognized. They were not being nominated by their schools despite their high test scores. Imagine the difficulties involved in finding potentially gifted students among students who are not experiencing academic success!

The need to overcome these difficulties led us to turn our focus to discovering and developing gifted minds at an early age. The Developing Gifted Potential Project was designed to attempt to meet this need.

Initiating the Developing Gifted Potential Project

To initiate the Developing Gifted Potential Project, we approached the administrators of several elementary sites with a proposal for finding and developing gifted potential in their schools. Where the principals felt positive about having the project, the proposal was then taken to their staffs, whose voluntary participation in sufficient numbers was necessary if the school were to be a participating site. A historical perspective on theories of intelligence as well as a rationale for the project were presented to the staffs. In light of recent changes in views of intelligence - affirming its multidimensionality and its modifiability - and the large numbers of children in their schools whose backgrounds might not be consistent with school culture, finding and developing gifted potential requires the following:

- understanding on the part of all staff members of the varied characteristics and appearances of giftedness,
- purposeful intervention for talent development starting in the early years,
- especially thought-provoking school and classroom environments encouraging the emergence of gifted behaviors, and
- training for all staff in recognizing gifted behaviors and in implementing strategies for their development.

Once school staffs agreed to participate and volunteers had been recruited, planning with each site began. We worked with each participating school to identify long- and short-

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range goals for the project so that the necessary components could be integrated within the school's special programs and needs, such as second language, multicultural, and restructuring programs. We found that a collaborative planning team at the site is essential to the smooth integration of the project into the school's daily life.

Project Design and Implementation

The role of gifted education programs is to ensure that the special educational needs of all gifted and talented students are met. These programs provide stimulating school and classroom environments based on the assessed needs of the students—a major factor in maintaining the tenuous link between the potential of these students and their hoped-for exceptional performance as gifted adults.

The importance of these classroom environments needs to be underscored in programs for underserved gifted students. For this reason our project focuses on providing staff development, classroom demonstrations, and peer coaching systems so that teachers become skilled in using teaching/learning strategies that develop the higher-level skills. We are currently working with the Hilda Taba Questioning Strategies, the Parnes Creative Problem Solving Strategy, and Kohlberg's Discussions of Moral Dilemmas. However, there are many other strategies and models from which to choose. The intent is to create learning environments which evoke and nurture giftedness.

Searching for gifted potential requires the incorporation of all that we know about multiple intelligences; cultural, linguistic, and socio-economic factors; learning styles; teacher observation; parental information; student assessment; and case study development in the process of talent pool selection. Early search, continual search, and talent pool follow-up by a site committee which assumes responsibility for decisions about assessment, review, screening, and placement of targeted students are important to the

success of this component.

Our project also provides parent education which empowers families as talent developers. Included are opportunities for learning home strategies which parallel and support those being used in class as well as for exchange of information about special abilities and needs.

Major Factors Affecting Project Outcomes

As with any project, particularly an experimental one, a great deal is learned in the process of implementation. It has been clear that a very few factors can strongly influence the outcomes of the project. The factors most noticeable in this project follow.

Site Administrator Support: In no school did the project get off the ground without site administrator support and vision of how the project might fit in with the school's goals.

Staff Development as Teaching in Action: Our experience shows us that teachers want and benefit from staff development in the form of classroom demonstrations. Given in-classroom modeling and peer coaching over an extended period of time, teachers are well able and willing to incorporate new strategies into their teaching.

District Support at Higher Administrative Levels: When, after three years of struggling with the project, we received support from high-level district administration in the form of strong "encouragement" of certain schools to participate with Integration Program funds for including these additional schools, we were able with the new schools to accomplish in one year what it had taken us three years to do in other schools.

Site Ownership of the Project: Because this approach to developing potential is long-range, it is important that the project be introduced in a manner which will allow the school site to eventually take on responsibility for most of the project components, including providing the

classroom demonstrations for new teachers and the parent education.

Benefits of the Project

The teachers in our project report that they are able to apply the thinking strategies across disciplines and that these strategies are useful tools putting into practice California's new thinking, meaning-centered curriculum for all students. They speak of growth in confidence in their own abilities to develop their students' thinking as well as confidence in their students' abilities to think and achieve.

Where there have been opportunities to teach the thinking strategies to parents, their enthusiasm ideas for application have been outstanding.

Spin-offs are another benefit of the project. One collaboration is Project Excel, a Title VII three-year grant project for the development of gifted potential in second language students at the primary level. The project was written by Rosa Perez, one of the gifted program resource teachers who helped initiate the Developing Gifted Potential Project, as a vital component of San Diego's efforts in this direction.

Outcomes

The expected outcome of San Diego's Developing Gifted Potential Project is an increase in the number of identified gifted students from diverse backgrounds in participating schools. As we move in this direction it is anticipated that all students in classrooms where teachers use the strategies presented will show growth in higher-level abilities and that teachers will improve in their capability to recognize gifted characteristics and behaviors. Equally as important, the Developing Gifted Potential Project may give educators and parents better understandings about giftedness, dispel some myths about giftedness, help teachers see themselves as talent scouts and talent developers, provide more nearly equal access to programs for the gifted, and help us rediscover and re-define sound practices in gifted education.

Difficulties in Addressing Creativity in North American Indian Students Living in Remote Communities

by David Rattray

There are many socio-cultural factors which contribute to the failure of school systems to adequately address creativity in native Indian students living in rural, isolated communities. This report lists several problems, discusses two of them in some detail, and indicates strategies for approaching their solution.

When native children in rural, isolated communities attend school for the first time, they go with five years of experience in how their world functions. As soon as they enter school, they meet different expectations, different values, and different ways of doing things. In essence, they're required to learn how to learn all over again. They have to develop new learning strategies because many of theirs don't work. Those who can "figger out" this new system succeed, and those who can't continually run into problems.

In our community we had a speech therapist do language assessments on the children who were entering kindergarten. She found that the language development of all of the children was approximately that of a three year old with respect to the school environment. All were functioning at age five with respect to their home environments. The expectation when they enter school is that these children perform at age five. One of the reasons for this age/language discrepancy between the two cultures is the way in which language is used. In most native homes, language is primarily functional, whereas in the school environment, language is used in many different ways; to make inferences, predict, play with, etc.

There are several approaches which foster and develop the creativity of these children, such as: using a whole language approach, language submersion, play activities that involve using language, pretend games, etc. All of these move from a base in which the child is comfortable and slowly add new concepts and new usages for language.

Another cultural conflict occurs when teachers try to control their classrooms and limit choices. Often native children, even four or five years old, are allowed to roam about the village unsupervised for long periods of time.

At an early age they are allowed to make all kinds of decisions, some of which may be considered major decisions in other societies. At school they are not allowed to be as independent as they are used to, often stifling their creativity and self-concept. Teachers should allow more self-responsibilities for these students and offer realistic choices, thus tapping two critical requirements of creative peoples - independence of thought and action.

Some factors that contribute to inhibiting creativity in native students are:

- Differing value systems between students and teachers
- Behavioral expectations of teachers different from the family's
- Decision-making procedures within the classroom which limit choices
- Overly structured curriculum
- Home environment not recognized and understood by the school
- Lack of a clear Indian identity
- Male and female roles in both societies
- Time orientation

The types of strategies teachers might utilize to enhance creativity in culturally different native students include the following:

1. Utilize the strengths of the local culture instead of stressing improvement of deficits with respect to mainstream society.
2. Recognize that language development for most native students is different from that in mainstream society, and so a special emphasis should be placed on whole language, including language immersion.
3. Enjoy activities such as the visual arts, music, expressive speech, role playing, story telling, use of humor, dance, drama, etc.
4. Encourage open-ended questions, unusual answers, originality of projects, and seeking answers.
5. Constantly bridge between the classroom activities and other areas in the student's world.
6. Establish a positive rapport with students based on respect.
7. Focus all activities on improving all students' self-esteem.

Continued on the next page

ON THE LIGHT SIDE

by Jean Watts



OH-YOU'RE RIGHT! SILLY ME!
"MAKE A DECISION" COMES AFTER "CONSIDER
THE CONSEQUENCES."

Watts © 1991

Rattray (continued from previous page)

8. Respect and encourage the low achiever.
9. Allow the curriculum to be different for different students.
10. Allow for different learning styles, rates, etc.
11. Address peer pressure and its consequences.
12. Become more aware of the local native culture and its importance to the students as well as to the wider world.
13. Give students opportunities to develop character and values.

David Rattray is a principal
in a remote community
in northern British Columbia

Academic Talent Search and UCI/Pre-College Program

The University of California at Irvine is offering a program to gifted and high-achieving students following the Talent Search model, wherein students qualify with SAT or SCAT test scores.

The UCI Pre-College is a summer program of challenging and stimulating college-preparatory course work for rising seventh through tenth graders. Students will select one major course of study: Humanities, Mathematics, Science, Communications and Fine Arts, or Computer Science for each module of their program. They also select one elective course for each week of the program. In order to accommodate students with year-round school schedules, the program has been designed in week-long and three-week long modules. On-campus housing is available from Monday through Friday.

A separate five-week program is available for senior high school students which offers course work for college credit. The registration deadline is May 24. For more information on these programs contact Deborah Bellflower or Ann Coker at 714/856-5414.

Note: Other Talent Search programs operate at other college campuses in California and around the country.

Tufts Study Summer Program for High School Students

Editor's Note:
This program is not
unique. Many colleges
and universities offer
similar opportunities.
Check with the
institution you might
wish to attend.

Tufts College in Medford, Massachusetts, offers the opportunity for high school juniors to participate in their summer school program from June 28th to August 9th, 1991. Students accepted in the program will be able to take two college level courses from 20 different departments.

The program also offers a series of workshops called "Introduction to College Life." These workshops are designed to teach college skills that are helpful both in the Tufts Study program and in a future college career. The workshops include how to study, budgeting your time, and how to take advantage of the many university resources available.

Tuition, including room and meals, is \$2590 for the six week program. Those interested may contact Jennifer Lundblad, Program Director, Tufts Study, Tufts Summer School, 112 Packard Ave., Medford, MA 02155 or call (617) 381-3562

Computers in Education : A Piagetian Perspective

by Thomas C. O'Brien

This article was submitted by the author and appeared in Principal, March 1987.

What's so special about computers in education? It's their interactivity: You do something and the computer does something back. But let's start at the beginning.

It seems to me that American education commonly asks the question, "How do we get there?" without first asking the question, "Where do we want to go?" It's as though we argue whether we should take a bike, a bus, or a boat without having first worked out a destination.

Before deciding on bikes, buses, or boats, let's discuss destinations. The present goals of education—at all levels—are largely concerned with the reception and storage of information and associations. (The capital of Wyoming? Cheyenne. Colorado? Denver. North Dakota? Oops, I forget.)

This is especially true in mathematics education. At the early elementary school level mathematics education largely amounts to the memorization of nonsense syllables (e.g., $4 \times 5 = 20$) from flash cards with no attention to relationships, context, utility, or generalizability. As the grade level gets higher, the approach is much the same except that the nonsense involves more steps.

I believe that the main goal of education is the development of complex thinking rather than the storing of inert associations and routine procedures. Children are active knowers and pursuers of knowing. Watch a two-year-old if you have any doubts. At that age, children are not mere storehouses for someone else's facts.

But the purpose of this article is to address means, not goals, in education. At present the child is seen as a passive entity. Knowledge is seen as "stuff" to be put into storage and brought up at test times. Teachers focus on more efficient ways to transmit associations. When children repeat them, they are rewarded with smiley faces and M&Ms, which makes them more and more passive. Administrators promote triviality by focusing on numerical data that measures children's knowledge of the nonsense syllables they've been taught.

The problem is that it works! Organisms

adapt. Children learn the game, adapt to it, and we are all the poorer. It is the rare teacher above fourth grade who reports that kids are eager, inquisitive, willing to tackle new problems. What I hear and see is that kids are b-o-r-e-d.

How did such a situation come about? There are several explanations.

Much of American education—both goals and means—is derived directly from the assembly lines of the rapidly industrializing America of 1910 to 1920. Under fire then, as now, from newspapers, parents, and school boards, American school administrators embraced industry's assembly line as a model for education.

The historian Raymond Callahan has documented the domination of American education by factory-oriented thinking centered about three themes: mass production policies and practices; cost-effectiveness; and time/motion "efficiency" research.

There's a second thread to the fiber of present-day American education: the psychological research on which much of education is based. In a great deal of the research, meaning is deliberately banished from investigation—as in nonsense syllable research—in order to ensure "scientific" cleanliness. Perhaps most important, much of the research is concerned with performance under various *external* conditions of reward and punishment.

But a third thread in the fabric of American education, at least in my 25 years of involvement, has seen a parade of fads and bandwagons. Remember the Initial Teaching Alphabet? Programmed instruction? Modern math? Behavioral objectives? Performance-based contracting? The open classroom? Each of these promised to be the definitive educational solution, and the fact that none of them lasted attests to educators' short attention span, to their unwillingness to look at underlying issues, and to the resilience of the factory model of education.

Which brings us back to where we started. Are computers a contemporary bandwagon in American education? Are they just another fad?

Thomas C. O'Brien, Professor of Education at Southern Illinois University, is the developer of Blockers & Finders, The King's Rule, Puzzle Tanks, and other award-winning computer software. He can be reached at the Teacher Center Project, Southern Illinois University, Edwardsville, IL 62026.

Given the increasing role of computers in the American work space and in society in general, the answer is probably no. But as an educational tool the computer is a two-edged sword. An apt definition of the computer is "ten thousand idiot clerks working at the speed of light," and it is true that computers will do foolish things—effortlessly and speedily—if we ask them to do so. They can deliver nonsense syllables by the megabyte.

But the computer can play a much more important role in a different approach to education. Sixty years of research by Jean Piaget and his colleagues show knowledge to be an active construction, a growing fabric of ideas and relationships, and not a collection of nonsense syllables.

In the Piagetian view, the fabric interacts with the outside world. It acts on the world and the outside world acts on it, modifying the fabric to incorporate the new reality. Knowledge, contrary to the nonsense syllable approach, is not additive, as with bricks in a wall. Rather, ideas *evolve*.

In this view, the mind is not a camera. The mind constantly organizes reality into fabrics of knowledge, and these fabrics tend toward coherence, stability, economy, and generalizability.

From the Piagetian educator's point of view, two other aspects are worth noting. The first is that the fabrics of a six-year-old, while smaller and less numerous than those of most adults, are qualitatively different. His cup is not only less full: it contains different stuff.

Second, the fabrics (organized complexes of ideas) tend not merely to interact with reality. They quest. Have you ever watched an infant coordinating fabrics of balance, muscle, space and purpose to grasp or to walk? Those first efforts—primitive, tentative, and full of what adults might call "errors"—evolve into the effortless coordinations that you and I now take for granted as adults.

How do these fabrics grow? Actually, they are pre-wired for growth, provided that interactions permitting and provoking growth are available. If those interactions are available, learning takes place. If not, growth is stunted.

From this point of view, the key to learning is dissonance, a mismatch between what we know and what we want or need to know. Dissonance must involve a *moderate* mismatch with the fabric. If it's too small, boredom sets in. For example, adding two and two is a trivial

problem for most people, but a suitable challenge for a four-year-old with a pile of chips in front of him. If the dissonance is too great—as differential equations are for the average 12-year-old—there's more boredom.

But given moderate dissonance, interaction takes place. You act on the dissonant "thing" and it acts upon you. J. McVicker Hunt (1969) likens it to eating steak. You act on the steak and the steak acts on you.

There are many aspects of dissonance, all of which lend themselves to the educational situation. One of the most familiar—widely employed by present schooling—is competition. But what about self-competition? What about challenge? Surprise? Novelty? Mystery? Complexity? Ambiguity? What of the built-in dissonance-detectors, curiosity and quest?

Where in the educational literature, or in teachers' guides, has attention been given to any of these aspects of dissonance—except to warn against them?

All this said—and I have been saying much the same thing for nearly 20 years—what's new? What's new is the availability of micro-computers in American classrooms. There are several important things to keep in mind about this new educational resource.

The bad news first. As I've said, computers can deliver educational trash—mind-killing drill and practice on nonsense syllables—effortlessly, patiently and, in some cases, with a patina of scientific respectability, thanks to elaborate data-reporting schemes. (Perhaps the results should be reported as they actually are: "John Smith memorized 23 of 27 nonsense syllables for a score of 85.185, which gives him 87.301 percentile rank with other nonsense-syllable memorizers in the class, and 83.109 percentile in the nation.")

On the bright side, the availability of micros makes it clear how trivial much of the computation-dominated mathematics curriculum really is. Here are the cube roots of ten numbers starting with 1,000:

1000	10
1001	10.0033322
1002	10.0066622
1003	10.00999
1004	10.0133156
1005	10.016639
1006	10.0199601
1007	10.0232791
1008	10.0265959
1009	10.0299105

The computer calculated them in seconds. How long do you suppose it would take a math student doing it by hand?

More important, widely available computer programs enable teachers to address familiar topics more easily or more richly than could possibly be the case with traditional textbooks.

For example, Les Dice (a public domain program available from the author in Apple format) enables students to investigate the mathematical possibilities in tossing one to six dice. The program shows the various tosses and compiles a histogram of actual and expected frequencies.

There are several hundred such pieces of exemplary educational software, most of them unknown to teachers. Clearly the computer-in-education movement is no longer in its baby shoes. But a more important aspect of computers is that they bring new issues and ideas to the classroom. For example, inference is a major aspect of one's fabric of knowledge ("There's airtight evidence that such-and-such is true.") that gets virtually no attention in the present school curriculum. Thanks to computer software like Safari Search (*see box*), inference can be a major component of the curriculum as early as grade 1.

Finally, and most important of all, is the notion that computers can revolutionize our approach to the central aspect of education: children's learning. In place of the mechanistic, computational, behavioristic approach so widespread in the *transmission* of knowledge, computers can enable children to be active in the *construction* of knowledge.

	COLD		WARM	
			COLD	
	COLD			
CLUES 4	Here's what you've seen so far.			

In this Safari Search activity, a flamingo is hiding in one of the 25 boxes. If the box you choose touches the flamingo's box sidewise, you are hot. If cornerwise, warm. If the box you choose does not touch the flamingo's box, you are cold. Can you find the flamingo?

Earlier I noted that dissonance is the key to learning. Organisms adapt through interaction with situations involving a moderate mismatch with their present state. If American education can be regarded as an organism – and I dearly trust that it can – the moderate mismatch provided now by the computers-in-education movement will enable traditional education to construct a new fabric based on what's important and what's nutritious in education, quite a different approach from the one inspired 70 years ago by the Ford assembly lines.

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The Euclid Gifted/High Ability Bilingual Magnet School

by Victoria Steinitz

In the summer of 1989, a new magnet school, the Euclid Gifted/High Ability Bilingual Magnet, was created within the Los Angeles Unified School District called. This magnet was to offer an enriched bilingual curriculum specifically aimed at the bright Limited English Proficient (LEP) child as well as the bilingual Fluent English Proficient (FEP) child.

The Euclid Gifted/High Ability Magnet is founded on the belief that LEP gifted students bring a unique resource, their primary language, to the instructional setting. In this magnet, a bilingual program utilizing Spanish and English recognizes and builds upon the uniqueness of each student's qualities and capabilities. Students develop techniques and recognize opportunities for the application of their skills – thus applying their natural resources of primary language and intellectual ability.

To enhance the language abilities of LEP students, the Gifted/High Ability Bilingual Magnet provides instructional opportunities in the primary language of the Spanish-speaking LEP child as well as opportunities for second language acquisition.

The Euclid Magnet provides for Spanish LEP students a thematic-based, enriched curriculum which promotes the use of the primary language to define and solve problems, to stimulate high-level reasoning, to extend vocabulary and language fluidity, and to engage students in both individual and cooperative efforts.

Now in its second year, the magnet offers a program for Gifted/High Ability English-speaking students to provide opportunities for second language acquisition in Spanish.

The identification process became the next major activity. Many bright Limited English Proficient children had not been formally assessed to determine whether or not they were gifted; thus, there was limited data in this regard. An informal assessment was developed by Sandra Kaplan, Alice Hayward and Victoria Steinitz in order to assist in determining which children would be eligible to participate in the

Special features of the Euclid Gifted/High Ability Bilingual Magnet School

- Educational technology using the computer as a functional and creative tool
- High-level language production using literature, drama, journalism and writing institutes
- Investigation of universal themes through exploration of literature, social studies, and science concepts
- Universal themes that provide students opportunities to relate concepts to their own lives and experiences as well as to the commonalities of humanity
- Provisions for advanced and accelerated language development and academic learning in both Spanish and English
- Development of research, productive thinking (critical, creative, problem defining and solving, logic) and basic skills through the interdisciplinary approach
- Participation in independent studies, small group and cooperative learning groups
- Development of intellectual leadership and scholarship
- Development of self-discipline based on kindness toward others
- Preparation of students to avail themselves of the opportunities in secondary/post-secondary education and the world of work
- Development of awareness, knowledge, and skills necessary to become effective and productive citizens

Written by Sheila Smith, Coordinator, Gifted Program; Judd Perrine, Advisor, Gifted Program; Alice Hayward, Advisor, Gifted Program; Yvonne Davis, Director, Elementary Instruction; Emma Rodriguez, Region Administrator, Operations; Maria Ott, Director, Bilingual Eastman Project; Sandra W. Kaplan, Visiting Professor, USC; Ester Castruita McShane, Principal, Euclid School and Magnet; and Victoria Steinitz, Coordinator, Euclid Magnet School

Euclid Gifted/High Ability Bilingual Magnet. The activities assessed three different abilities: verbalization, questioning and creativity.

Verbalization Center

At the Verbalization Center, the child was to express him or herself in a meaningful way using clear, precise and colorful language. The first task was to play a game called "Pick and Tell" in which the child chose a card with a person's face on it and then told what that person was feeling and why. Before the game the teacher-facilitator at the center showed a chart with pictures of four basic feelings: happiness, sadness, fear and anger. Prior to their individual descriptions, the children in the group discussed the variety of words that one could use to describe different emotions.

The second task was to predict or forecast a future situation from a given situation. The child was to choose an action picture and tell what would be happening in 5 minutes – as if it were a single frame from a movie.

The last task was a discussion of an open-ended question. In all tasks, it was important for the children to understand that there were not "right" or "wrong" answers. What was important was the child's reasoning and use of words.

Questioning Center

The Questioning Center was to assess the child's ability to use problem-solving techniques in fact finding and solution finding. Again, a game situation, called "Guess What," was created. The teacher-facilitator at this station showed charts with clue words and pictures expressing the concepts of color, size, shape, texture and function and reviewed questioning words such as who, what, when, where, why and how. After the review, the teacher demonstrated the game by being "It." "It" was blindfolded and chose a number between 1-10. There were corresponding numbered bags with a variety of everyday objects, one in each of them. The object was taken out of the bag and shown to the rest of the group, then put back in the bag. "It" then took off the blindfold and could ask questions of the group. The questions had to be phrased so they could be answered by a "yes" or "no" response. There was no limit to the number of questions that could be asked. The only limit was time. Each child had four minutes to ask the questions.

Creativity Center

The third center was the Creativity Center where children were asked to produce high-quality and original ideas, and explain these ideas. The first task required attribute blocks. The child began by adding on to a teacher-made pattern. Then the child created his or her own pattern. The second task was to make a picture out of a "squiggle" (an abstract scribbled line on a paper), then to tell about the drawing.

The assessments took about two hours. Children were in groups of six to eight and rotated so they all had an opportunity to participate at each station. There were six sessions held over a three-day period. Children in 1st and 2nd grades were grouped together, as were 3rd and 4th graders and 5th and 6th graders. Assessment teams were composed of a teacher/facilitator and an observer. The observer had an Identification "Jot Down" Form for each child at that center on which he or she evaluated the child's performance in absorbing information, seeing cause and effect relationships, curiosity, fluency in native language, seeing beyond the situation, noting details, adapting easily and displaying originality. After each session, the teacher-facilitators and observers met and discussed the evaluations and observations.

Meanwhile, back at Euclid School, staff was busy verifying cum records and test scores. The magnet school opened its first year with 85 students – 65 of whom are LEP and 20 of whom are FEP.

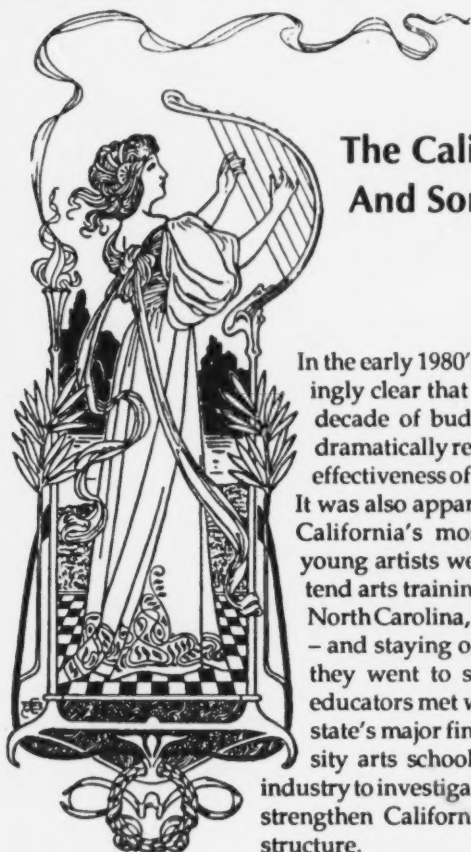
The curriculum is thematically based. The universal theme this year is "Change." Some of the generalizations on which the children focus are:

- Change can be positive or negative.
- Change can be spontaneous or planned.
- Change can be revolutionary or evolutionary.

The Euclid Gifted/High Ability Bilingual Magnet is an exciting, innovative and stimulating educational environment. Limited English Proficient as well as Fluent English Proficient children are challenged and encouraged to grow, create and excel in both their primary and secondary languages. These children are our bilingual leaders of the 21st Century.

Victoria Steinitz is the on-site coordinator for the Euclid Magnet in the Los Angeles Unified School District at 806 Euclid Avenue, Los Angeles, CA 90023.

COMMUNICATOR



The California State Summer School for the Arts And Some Thoughts on Advocacy for Arts Education

by William Cleveland

In the early 1980's it was becoming increasingly clear that the effects of more than a decade of budget cuts and layoffs had dramatically reduced the availability and effectiveness of arts education in the state. It was also apparent that large numbers of California's most talented and creative young artists were leaving the state to attend arts training programs in New York, North Carolina, Michigan, and other states – and staying on to live and work where they went to school. In response, arts educators met with representatives of the state's major fine arts institutions, university arts schools, and the entertainment industry to investigate partnerships that would strengthen California's arts education infrastructure.

The establishment of the CSSSA was one outcome of these discussions. The intent was to provide a training ground where the resources of these disparate, yet interested partners would be made available to future generations of artists. Another goal was to dramatically raise the standards, visibility, and prestige of arts education in the state and provide a laboratory where artists and educators could generate new curricula reflective of our cultural diversity and the uses of new technologies in arts education.

The School

The CSSSA that emerged, after three and a half years of legislative effort, is now entering its fifth season. The school is a training program for extraordinary young artists of high

school age, open to students attending any public or private secondary school in California. The sole criterion for admission is an applicant's potential for professional development as demonstrated through audition, portfolio review, or screening. The CSSSA faculty is composed of professional artists and arts educators in the six disciplines taught at the school: creative writing, dance, film and video, music, theatre arts, and visual arts and crafts. Faculty members are selected on the basis of their own artistic excellence in their art forms as well as their teaching abilities. In 1991 the school will be located at Mills College in Oakland and will move to the California Institute for the Arts north of Los Angeles for 1992, 1993, and 1994.

Each summer CSSSA establishes a new educational community of nearly 100 professional artists and 400 students. The residential program is intense, placing as much emphasis on the creative process and interdisciplinary collaboration as it does on artistic technique and interpretation. As a result, the curriculum is filled with such classes as modern dance choreography, electro-acoustic music composition, narrative photography and improvisational theater. The more traditional, large-scale, labor-intensive artistic productions have not been central to the program. In fact, much of the course work challenges students with subject matter that, for them, is new and unexplored. CSSSA participants are expected to take creative risks, solve new problems and exercise imaginative discipline. The result is a uniquely supportive artistic environment in

Continued on page 34

THE ARTS



EDITOR'S COLUMN



Jody Hess

With this issue, the *Communicator* welcomes Jean Drum as Assistant Editor. When we advertised in the January issue to fill this volunteer position, Jean called to express her interest. As we talked, I was impressed with Jean's enthusiasm, ideas, and intellectual curiosity. I hoped she would take on the challenge!

At the same time, though, Jean expressed some reservations. She wondered if, as a classroom teacher, she would be able to find the time necessary to do the job. And, Jean wondered, "Isn't it most members' perception that district coordinators and university people would be the ones who have the expertise needed for editing?" The answers to her questions are "yes" and "no."

The *Communicator* is a time-consuming job! But, thanks to Sharon Mountford, who is responsible for all of the word processing, layout, proofing, and mailing, the editor's job becomes one of contacting the writers, choosing and editing copy, and writing a column such as this one.

Our guest editors help us enormously by suggesting potential authors and reading the copy for content. Other experts serve as an editorial board.

Yes, the *Communicator* takes time and energy to produce, but the more help we have, the lighter the load. And, CAG is lucky to have a supportive group of experts who are outstanding in their fields.

What is missing from this picture? YOU! The *Communicator* needs more of you, our membership, to help.

We welcome submissions from classroom teachers, some of whom you will read in this issue. (In fact, Jean Drum's article about the GATE arts program in Garden Grove was a result of her taking the plunge to research and write about her own district's exemplary program.)

We need more of you teachers to write about your own experiences with GATE students. And we can help you get your article in shape to publish.

We need you to have your students write for us, too. Student essays about school activities and their opinions about issues important to them in education make for great reading! Ask your students to give advice for teachers and parents about what life is like from their point of view.

And, we especially need parents to get involved with every issue of the *Communicator*. We need you to write about raising your gifted children, making the school system work for your child, and what you and other parents are doing locally for gifted students.

Would any parents out there be willing to become contributing editors? Would you help us find authors who can speak directly to parents' needs? Please consider volunteering your time to make the *Communicator* the best voice of our association that it can be!

(September's focus will be Thematic Instruction. Themes for future issues will be Leadership By and For the Gifted, and Vocational and Career Education.)

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Submission of material

CAG encourages all interested parties to submit articles for publication. All submissions will be given careful consideration. Photos and camera-ready artwork are particularly desirable. Send all material with your name, address, and phone number to Jody Hess, Editor, 5430 West 138th Street, Hawthorne, CA 90250; 213/643-7426.

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PRESIDENT'S COLUMN



Sandra Kaplan

In a science class, the teacher has concluded the discussion of the skeletal system by presenting the class with five pictures of the human body. One picture illustrates Picasso's cubist perception of the body. Another picture portrays the body from Reuben's perspective. Two pictures are depictions of the human body from the sculptures of Rodin and Giacometti. Finally, the students are shown Modigliani's interpretation of the human body. The students are asked to discuss why the body has been illustrated so diversely when all bodies basically are formed by the same skeletal system.

In a social studies class, the teacher is discussing the theme "Rights." First, the students are asked to define the historic meaning of the theme by taking notes from a collection of 1960's folk songs they are listening to during the class period. Second, the students are expected to locate evidence of the theme from their observations of Diego Rivera's murals.

In an English class, the teacher is asking students to determine the relationship between expressing ideas in the written form and style of the novel and in the written form and style of lyrics in music.

In a physical education class, the teacher/coach is preparing students to analyze a dance sequence. These varsity basketball players are expected to define the movements in dance that are common to movements in playing basketball. The purpose of this comparison is to promote awareness of the basic physical actions necessary for adeptness and aesthetics in physical expression. As a consequence of this lesson, a ballet teacher will work with the basketball team to improve their understanding and approaches to particular plays in the game of basketball.

Each of these classroom vignettes describes the uses of the arts as a resource. The concept of extending meaning and improving comprehension is fundamental to using the "arts as a reference." Similar to the use of other printed and non-printed sources as references, including the arts as a reference to the curriculum provides historic, social, and personal perspectives, additional complexity and abstractness of subject matter, and extensions of learning that have the potential to motivate ventures into new areas of intellectual inquiry and personal endeavor. Using the arts as a reference is not just integrating the arts into a curriculum or unit of study. Whereas the integration of the arts often is seen as using the arts as a medium to further expression, using the "arts as a reference" is using the arts to further knowing and understanding of subject matter. In this context, the arts augment the teaching and learning of the curriculum, and provide alternatives to investigate and to learn more about an area of study.

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TechNet will return in the Fall

THE VIEW FROM SACRAMENTO

by Barbara Brandes

The fifth and final teleconference/staff development day for the first year of "Building a Coalition for Excellence: Project Open-GATE" took place on May 9. Having reviewed both the participant evaluations of the teleconference and activities as well as the plans that districts developed as one of the activities, we are pleased with the steps that participating districts have made in implementing the goals of the project. I want to thank all of you who have participated in the project this year and to invite you, as well as others who may not have participated this year, to attend project events during the 1991-92 school year.

The consensus among the participants and facilitators clearly points to the need for efforts to be focused on developing guidelines, principles, and examples of the appropriate differentiation and extensions of the curriculum that will provide challenge and advanced learning opportunities for gifted and advanced learners. Curriculum that nurtures academic talent was the topic of one of the teleconference/staff development days this past year, but we were only able to touch on the key issues. During this next year we plan to get into these issues in greater depth, working toward the development of a publication on curriculum differentiation that we expect to complete during the third year of the project (1992-93). In doing this work we will be looking to CAG as an organization as well as teachers and subject matter experts to help us move the state of the art forward in terms of curriculum differentiation within California's curriculum frameworks.

A second set of issues which we plan to address in greater depth next year pertains to improved services for underrepresented groups of students. The focus will be on understanding the impact of cultural diversity on the development and expression of academic excellence as well as the implications for practice. Participants will have an opportunity next year to read about, hear about, and view examples of strategies, programs, and practices that have proven effective in discovering, nurturing, and supporting excellence in diverse populations.

Many of you are aware that the U.S. Department of Education is coordinating the development of a national report on gifted and talented education. This report will articulate a national perspective on gifted education that will be the first formal statement of national perspective since the Marland report. The directions suggested by this report will generate lively discussion and have considerable impact on programs throughout the nation. We plan to schedule a special teleconference (probably during March 1992) to provide a forum for discussion of this report. We will invite several representatives from the national committee to participate in a panel discussion of the report as well as a panel to discuss reactions and implications for California programs.

I will keep you posted through the *Communicator* as well as through other announcements as our plans and dates for events next year get firmed up. In the meantime I wish all of you a successful completion of the school year.

CALENDAR OF MEETINGS AND CONFERENCES

June 24-29, 1991

Autonomous Learner Model Conference
Estes Park, CO
Contact ALPS, 800/345-ALPS.

July 15-26, 1991

Confratute '91, Summer Institute on the Gifted and Talented
University of Connecticut
For information contact 203/486-3231

July 18-20, 1991

SENG (Supporting Emotional Needs of Gifted) Conference
Perspectives: Views of the Past - Hopes for the Future
Charlotte, NC
Contact Leona Gray, P.O. Box 2745, Dayton, OH 45401.

July 29 - August 2, 1991

Ninth World Conference on Gifted and Talented Children
Talent for the Future
The Hague, Holland
For information contact Conference Secretary, P.O. Box 463, 6500 AL Nijmegen, The Netherlands.

August 4-7, 1991; Preconference workshops - August 2-3, 1991

Conference on Critical Thinking and Educational Reform
Teaching Students Intellectual Standards...
Sonoma State University, Rohnert Park, CA
For information call 707/664-2940.

August 5-9, 1991

Fifth National Institute on Students at Risk
How to Help Bright Underachieving Children
Oconomowoc, WI
A "learning fest" for children ages 6-13 is offered in conjunction.
For information call 800/475-1118.

February 21-23, 1992

30th Annual CAG Conference
Long Beach, CA
Call for presenters on page 39.

Arts
Education
for
All
Children

Improving Art Education: The Getty's Program

by Leilani Lattin Duke

Student art can be a joyful thing. Whether it rises to the level of prize-winning exhibitions or simply decorates the halls of an elementary school, children's art is always fresh and uplifting. Such displays are the most visible signs of how highly art education is prized in a particular school. Ironically, the success of such activity can obscure, and may even contribute to, art education's Achilles' heel: the majority of high school students who never participate in an art class of any type.

According to the U.S. Department of Education, less than 20 percent of an average high school's student population enroll in an art class before graduation. This unsettling statistic shows how much more needs to be done to win a more important role for art in the general education curriculum for all students. Why shouldn't all students, and not just the talented and self-motivated ones, benefit from art? The Getty Center for Education in the Arts believes that the arts, in fact, are fundamental to every child's educational development.

The Center is dedicated to improving the quality and status of arts education in the schools across the nation, primarily by focusing its efforts on an approach to teaching the visual arts called discipline-based art education (DBAE). This approach includes content not only from art production (which is still of fundamental importance), but also art history, art criticism, and aesthetics.

DBAE requires that for art to become a more meaningful part of general education, instruction should be substantive and comprehensive, and should include written, sequential curricula that enable students to make the most of their own creative abilities for making art. But the student should also learn to grasp the cultural and historical contexts for art and be prepared to raise questions about the very nature of art.

The long-range goal of DBAE – to help students gain an informed understanding of art – is central to all of the Center's activities. These fall into five categories: the advocacy of art education in general and DBAE in particular; the professional development of teachers; the establishment of programs to demonstrate

DBAE; the development of the theoretical foundations of DBAE; and curriculum development.

Advocacy

The Center's advocacy efforts are directed toward increasing the understanding of the value of art education and DBAE with the arts and education communities and among parents, policy-makers, and the general public. The Center certainly cannot claim to have all the answers, but it can, as it does, frequently sponsor national conferences and regional roundtables for discussing and debating the issues.

In January 1991 the Center held its third biennial conference, which explored arts education and technology and showcased applications of technology to both visual and performing arts education. As with its first two conferences, the Getty Center will make available printed proceedings and videotapes to all who are interested.

A number of national organizations in the art and education fields now support the Getty's efforts. For example, in 1989, the Center and the National PTA launched a three-year pilot project to raise the awareness of parents about the importance of art education for children.

In the first phase, 53 local PTA chapters nationwide hosted meetings to discuss how parents could support art education in their local schools and encourage their children's interest in art at home.

The second step, now in progress, builds on the first phase. Using materials developed at the nationwide meetings, 100 chapters from each of three states (California, Nebraska, and South Carolina) are devoting monthly meetings to art education and to strengthening their schools' art programs.

At the conclusion of the project, the art education advocacy materials that have been developed will be revised and made available at a nominal cost to all PTA chapters throughout the country.

Also, the National School Boards Association is collaborating with the Center to produce a visual-art education policy manual for use by

school board members nationwide. In addition, the National Conference of State Legislatures has joined with the Center to provide a guide to model legislative programs for arts education to be used by state legislators. And in 1990 a pilot project was launched with Standard Brands Paint to distribute brochures on the importance of art education to purchasers of art materials in all of its California stores.

The Center also advances the cause of art education and DBAE through videotapes, publications, and staff presentations at education conferences. Its most recent video project, a 15-minute production entitled "Arts for Life," was released in June 1990.

Professional Development

To familiarize both general classroom teachers and art specialists with DBAE concepts, the Center conducts several professional development programs. For the training of new teachers ("preservice" training), the Center has awarded contracts to several colleges and universities to devise plans for incorporating or strengthening DBAE in their preservice curricula.

Contracts were also awarded to 10 universities that had participated in a Center-sponsored seminar, "The Preservice Challenge," held in 1987 at Snowbird, Utah. The conference resulted in a wide range of highly creative approaches to training new teachers in DBAE. A team at the University of Nebraska, for example, designed a three-part course in which preservice teachers first studied DBAE theory, then designed and taught a sample course to elementary school students.

Northern Illinois University came up with an innovative lesson organizer, the Aesthetics Resource Box, containing index cards color-coded according to four major questions about art. Brigham Young University devised a studio art course that was augmented by concepts from art history, aesthetics, and criticism. The universities were later awarded one-year extension contracts to make their course curriculum and materials available to other art education departments around the country.

A similar project is underway at California State University (CSU), a major force among teacher education systems in the nation. Comprised of 19 campuses and graduating 80 percent of the teachers in California and 10 percent nationally, CSU can be a powerful model of how staff development in DBAE can

work in large public institutions.

Inservice training has been a major focus for the Center since 1982, when it established the Getty Institute for Educators on the Visual Arts as a research and development project for implementing DBAE in Los Angeles County school districts.

This pilot project has been a success. Today, 34,000 students in 21 school districts are receiving discipline-based art education instruction. This instruction is provided by the 1,130 teachers who attended the Institute's three-week summer staff development programs between 1983 and 1989.

The Getty's involvement in the Institute has concluded, and three district-run institutes are now carrying on the DBAE programs. The methods developed by the Getty Institute are being made available to interested school districts nationwide through support from the National Diffusion Network, a program of the U.S. Department of Education. Meanwhile, the Center is training a pool of consultants qualified to assist districts wishing to develop DBAE programs.

Demonstration Models

DBAE is not a rigid program that can simply be superimposed on a school district. Indeed, it is a flexible approach that can, and should, be adapted to local needs and cultural mixes. The Center promotes different approaches to implementing DBAE across the country by supporting the efforts of other organizations to develop their own programs. Its first grants, awarded in 1985 to 1987, went to four school districts - Provo, Utah; Robbinsdale, Minnesota; and Portland and Eugene, Oregon. The results are now being evaluated.

A more ambitious program began in 1987 with the awarding of planning grants in eight states. The program became fully operational in 1989 with five-year, \$625,000 matching grants to six consortia of universities, school districts, art museums, state departments of education, and other cultural organizations in Florida, Minnesota, Nebraska, Ohio, Tennessee, and Texas.

These grants helped establish regional institutes that can demonstrate the effectiveness of DBAE in a broad range of communities. In 1990, these institutes served close to 60 urban, suburban, and rural school districts, as well as art museums and universities in their own and neighboring states.

DBAE Theory Development

In order to refine and extend the theoretical foundations of DBAE, the Center commissions and publishes scholarly essays, monographs, and studies. It also organizes seminars, such as "New Voices and Multiple Perspectives of DBAE," held in May 1989. More than 130 art educators spent three days presenting and responding to papers and discussing the nature of DBAE. The presentations were published as a volume in 1990.

Also in 1990, the Center published monographs by three noted educators: Dr. Rudolf Arnheim, psychologist and art educator; Howard Gardner, professor of education at

Harvard University; and Stephen Kaagan, former Vermont Commissioner of Education.

Now in the works is a five-volume series designed to help translate discipline-based theory into practice. Published for the Center by the University of Illinois Press and edited by Dr. Ralph A. Smith, professor of cultural and educational policy at the University, the series, entitled *The Disciplines and Art Education: Contexts of Understanding*, was recently launched with the publication of the first volume.

In 1989 the Center began a joint project with the Educational Resources Information Center (ERIC), a program of the U.S. Department of Education. ERIC, which monitors, acquires, and processes professional literature from broad areas of education, is a world-wide resource with more than three million annual users of its 16 bibliographic databases. Now, with Center support, the ERIC Adjunct Clearinghouse for Art Education makes art education more accessible to scholars and students.



BOOK SHELF

Science Fair by Randee Blair and Barb Smith, published by Dandy Lion Press.

Reviewed by Judy Jimenez

Science Fair contains a wealth of information valuable for organizing and executing a successful science fair for middle school students.

The format is simple, attractive, and sequential, with information organized into three sections: Organizational Notes, Student Pages, and Judges Pages, Letters, and Certificates.

Of special value to a busy teacher are the detailed planner's schedule, checklist, and copy-ready materials for students, judges, and parents.

Suggestions for students are based on classifying projects into experiments, models, demonstrations, and collections. A student checklist is included to facilitate organization and keep students on schedule. Suggested topics and questions, ideas for presentation, and a model project based on scientific process are aimed at helping students feel comfortable with project standards and teacher expectations.

I highly recommend this book, especially for those new to science fair organizing.

Judy Jimenez is a science teacher and veteran of many science fairs in Montebello USD in the Los Angeles area.

Curriculum Development

Commercial curriculum publishers have tended to overlook DBAE until recently. To help rectify this situation, the Center established the Curriculum Development Institute (CDI). Art teachers, museum educators, and curriculum and discipline experts collaborated to design, develop, field-test, and disseminate prototype DBAE lessons for elementary, middle, and secondary grades. These prototypes are intended to demonstrate the range of forms DBAE can take and to stimulate further curriculum development efforts.

As the populations of America's schools becomes more culturally mixed, the need for teaching materials featuring images of culturally diverse works of art has concerned the Center. In 1990, it launched a multicultural art print series by publishing poster-size, color reproductions of five works each from the California Afro-American Museum and the Pacific Asia Museum. Eventually, the series will include 40 more posters from eight different museums.

These Center programs cover a wide range of activities. Through all of them, the Center hopes to contribute to improving visual art education. Information about the Center's publications may be obtained by writing:

Getty Center for Education in the Arts
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Five Proven Ways to Incorporate Art in Every Classroom

by Jerry Chris

Long before man knew how to communicate through the written word, he loved to draw pictures on the walls of his cave. Several thousand years later, we still learn from those illustrations. Indeed, man's development as a civilized species can be traced through his art in all its forms. From the scratchings of these cave men, to the classical perfection of Michelangelo's "David," to the repetition of Warhol's "Soup Cans," we can discover the philosophical, political, and social underpinnings of every move man has made. But do we?

Unfortunately, not often enough. Caught in an endless sea of assessment testing, core requirements, and factual data, the teacher of honors level courses naturally pushes art aside and stockpiles it with other seemingly extraneous activities of which "I know I should do more" or "I'd love to do more if I only had time."

And what have we lost? A tremendous source of interdisciplinary information. An opportunity for individual, creative analysis. A constant reminder that beauty and goodness transcend time. An opportunity to show students that education is much more than nuts and bolts which, if not immediately applicable, are useless.

If we as teachers accept the blame for this loss, perhaps we had better seek out concrete ways to incorporate art into our classrooms without sacrificing too many precious minutes of time for required material. Here, then, are five proven ways to help accomplish this task.

1. Character Analysis

This activity provides an excellent opportunity for a one-paragraph writing experience in English or social science. Each student must select a painting (easily found in the 700 section of the school library) and analyze what he perceives to be the thoughts of a character in the painting. For example, in Rockwell's famous "Discovering Santa," is the boy, as he pulls the Santa costume from his dad's drawer, pleased with the confirmation of his suspicions or distraught over his unexpected discovery? In Homer's "Girl with a Pitchfork," is the main character, with a stern expression and firm grip

on the fork, thinking of the work ahead, or of revenge on an unfair employer or even a former lover? Obviously, the student, not bound by right or wrong answers, remains free to analyze and pass judgement while venturing into the aesthetic realm. Limiting the choices of paintings to a particular time period will add further value and insight in the social science classroom.

2. Artist Roleplay

This assignment is designed to assist students in seeing the interrelationship of art, history, and philosophy. Each student will roleplay a famous artist, being careful to speak only in first person while making the presentation. Each presentation will be no more than five minutes long and must contain these essentials: 1) major influences, 2) typical themes, 3) predominant style, 4) significance of the work as a reflection of the times. A student portraying Salvador Dali, for example, must explain the influences of the 20th century world, his themes of juxtaposition and eroticism, surrealism, and his frustration at being trapped in a technologically absurd world. The student must dress the part and show the art work. 35mm slides, taken from art books, will greatly enhance the presentations since this allows projection to a size easily visible to the entire class. Laser discs of famous art works are now available. If done properly, the activity will allow exposure to a significant number of art works in a way which does not become tedious for the students. The teacher may utilize the activity as a break from regular subject matter, or may intersperse the work throughout the year as a means of introducing particular time periods or philosophical movements.

3. Art Parodies

Although exposure to art remains the real purpose of this assignment, healthy combinations of parody and current events should provide a great deal of enjoyment for the teacher and students. Each student will photocopy a "masterpiece" and then make several adjustments to "bring it up to date." For example, a student might begin with Van Gogh's "The

Plains of Crow," which depicts beautiful wheat fields, and replace a majority of the fields with barren, cracked land to show the plight of the current farmer. Monet's famous ocean scene, "Terrace at Le Havre," might suddenly have oil wells in the bay. Seurat's "Sunday in the Park" could be altered to include skinheads, rockers, and skateboarders. (Some may find this assignment a bit sacrilegious, but nothing can be much more sacrilegious than having students go through school without exposure to classical art!)

4. Art Juxtaposition

The fact that "history repeats itself" is a time-proven platitude which forms the basis for this project. In this activity, students will juxtapose photographs of current or historical events with classical art in order to show how the great themes in literature and history repeat themselves. For best effect, the teacher should make 35mm slides of both the art works and the historical photographs and should project them side by side using two projectors at once. Because in modern times the photographer's camera is everywhere, and because an artist somewhere, sometime has put just about everything on canvas, the possibilities are endless. For example, scenes from the Holocaust can be juxtaposed with the anguish of Munch's famous "The Cry." A teacher of the 1920's novel might show Benton's "City Activities," with its flappers and gangsters, opposite real photographs of that era. Added value will come when students begin to realize that only the faces change in history; the Chinese government's ugly repelling of the student rebellion in 1989 has been seen many times in many places, often closer to home than we would like to admit, such as in Philip Evergood's "American Tragedy."

5. Historical Art Interpretation

Two major movements seem predominant in the current social science framework: the incorporation of art and the utilization of writing in the curriculum. This activity will allow the teacher to do both. Students will analyze the characters portrayed in a famous art work and create a short story which portrays the events which led up to their placement in the picture. For example, in Emanuel Leutze's immortal painting of "Washington Crossing the Delaware," eleven other men fill the boat. Only half seem very secure in this adventure and three

seem almost frightened. One seems to be hiding in the back. Three wear coonskin caps; three don officer's hats; one wears a Scottish tam. One's head is heavily bandaged, yet he is in the general's boat. The intent of the assignment is to "trick" the student into taking a very close look at a famous piece of art, to have him use his imagination, and to write creatively about what he sees. The emphasis must be placed on the content of the short story rather than the form so as not to turn the students off to the study of art.

In a technological world which daily seems to rob us of the opportunity to dream and create, the use of classical art in every classroom is a necessity. As more and more students find value only in what pays immediate cash dividends, the responsibility rests more and more with the individual teacher to expose these pupils to the imaginations of the past. The expression of dignity, a sense of our place in the universe, and an appreciation for the beauty and ugliness in everything appear to be much-needed lessons well taught through art. Hopefully, the activities suggested above will help to bring those messages home to the modern student.

Leadership Training

Over 200 middle school students and advisors from throughout California will gather at Mills College in Oakland July 8-10 for leadership training sponsored by the California Association of Student Councils (CASC). All students are welcome whether or not they are currently holding an office.

Registration is \$235 for students from CASC member schools and \$275 for individuals who attend non-member schools.

Keynote speakers include John Alston, whose new book, *Story Power: Talking with your Teens during Turbulent Times*, will be featured in Walden Book Stores in July. Jane Taylor Wilson, a nationally known motivational speaker, will also be on the program. Workshop topics include public speaking, team building, conflict resolution, parliamentary procedure, building school spirit, noon-time activities, community service, and getting others involved. Students also meet daily in small groups to participate in structured exercises.

Contact CASC at 415/834-2272 for more information.

Jerry Chris is a humanities teacher and International Baccalaureate Coordinator at Mission Viejo High School in Saddleback USD. A mentor teacher, Jerry is CAG's Orange Region "Teacher of the Year" for 1991. For more information on activities see 50 Ways to Stimulate Low Ability and Reluctant Learners, Vol. 1, 2, by Jerry Chris. (New York: Trillium Press).

Fullerton Arts Program Helps Identify Talented Students

by Lauralyn Eschner

Children need to be provided with a broad range of opportunities to discover their talents and gifts. Fullerton School District has developed and implemented a model of arts instruction which assists children in revealing their strengths, provides for early identification of giftedness, and trains teachers in methods of teaching the arts. It has also fostered an active partnership between the community and the schools. This program, All the Arts for All the Kids, touches the lives of every one of the nearly 9000 kindergarten through sixth-grade children in the district's fourteen elementary schools. It is a program which can be readily duplicated.

The arts form an integral component of a child's education. They can kindle a quest for knowledge and can initiate a child into the mysteries of creativity. Education through music, dance, drama, and visual art transcends the boundaries of language and allows children to open windows of communication not accessible by words alone. A quality arts education accomplishes each of these while imparting arts skills, enhancing critical thinking capabilities, and evoking learning through all modalities. California's Education Code spells out that the arts must be a part of the public school curriculum, just as reading, math, and science must be, and it is every school district's duty to provide a comprehensive arts education for all its children.

The Program

All the Arts for All the Kids is based on a dynamic collaboration among the community, artists, and the school district. Through this program, trained arts specialists visit every kindergarten through sixth grade classroom in the district. They provide sequential lessons in music, dance, drama, and visual art, and demonstrate to teachers methods of implementing California's *Visual and Performing Arts Framework*. The lessons are formulated to integrate district curricula while providing fine arts experiences for all the children. In California, very few elementary teachers are trained in methods of teaching the arts, yet all are required

to teach them to their students. Consequently, a key feature of this program is that every lesson is designed to benefit the classroom teacher as well as the students. Together, the classroom teachers and their students are active learners and participants.

This fine arts program facilitates the teaching of arts skills and is a tool to draw children into the world of learning. It is an integrated, correlated program which focuses upon the similarities of cultures, disciplines, and content areas. It is jointly funded through general funds and monies provided by the PTA and Children's League.

Training

An important component of this program is training, both for the classroom teachers and for the arts specialists. Opportunities are provided for the classroom teachers to receive college credit by taking after-school courses that assist them in developing methods to teach children the arts and methods to correlate the arts with other subject areas. (One such course was funded through a grant by The California Arts Project.) The arts specialists participate in intensive training which includes classroom management techniques, lesson plan development, and district curricula, as well as ways to enhance creativity and thinking skills. This training forms an essential link between the inspiration of the arts specialist and that of the children. Without this link the message can be lost in the translation process of teaching and experiencing.

The Arts Specialists

The arts specialists were chosen through a rigorous hiring process. Prospective specialists passed a paper screening, a personal interview, and then were carefully evaluated by committee while teaching an arts lesson to a classroom of children. Successful candidates had experience working with children and had demonstrated achievement in their art form.

Our arts specialists included members of the Aman Folk Ensemble, a number of credentialed teachers, a muralist, a ceramicist,

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children's book illustrators, an opera singer, a professor of dance, and actors who have performed Shakespeare on stage and television, as well as extremely talented parents from our community. A real camaraderie has developed among the arts specialists, teachers, parents, and children.

Activities and Learning Outcomes

Children throughout the district used drama as a safe opportunity to develop verbal and presentation skills. For example, they learned about iambic pentameter as they acted out Shakespeare, used their imaginations to create tableaux vivants which illustrated stories they wrote, and used pantomime to communicate tales with beginnings, middles, conflicts, resolutions, and endings.

Dance helps children to internalize kinesthetic learning through graceful expression. Students in Fullerton discovered storytelling traditions of Tahiti as they danced an age-old dance of the long-boats, learned about early American culture as they joined in an Appalachian circle dance, and performed their own creative dances based on their classroom studies. Some classes moved to the rhythmic beat of the drum as if they were the underwater sea creatures they were studying in class. Others danced the dance of the desert environment to emphasize the learning that was taking place in their classrooms.

In the visual art classes, children made their own creations after seeing the art work of

masters from primitive to modern times. They used their imaginations to bring to life animal shaped pinch pots, painted life size murals, formed foil sculptures. They also created family portraits and self-portraits from a large variety of materials.

The joy of music was expressed when children wrote and performed their own opera, learned about the science of sound as they made musical instruments, wrote some of their spelling words in musical notation, and sang for the pure joy of singing.

Conclusion

Through All the Arts for All the Kids every kindergarten through sixth grade student in the district has been touched by all of the arts. Teachers and arts specialists have received training, and many children have been identified as potentially gifted. A wide variety of learning styles have been addressed through the lessons, and children have used their problem solving skills while heightening their creativity. In addition, a strong and active partnership has been formed between the community and the schools, both in terms of arts specialists and funding. It is the birthright of every child to have an arts education and the duty of every school district to provide one.

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Kim Nguyen,
tenth grade
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Mrs. Carpenter,
Teacher

The Arts: Of, By, and For Gifted and Talented Students in Garden Grove

by Jean Drum

The arts really make a difference to the students in the Garden Grove Unified School District's GATE Fine Arts Program. When AB 1040 encouraged the expansion of the traditional academic gifted programs to include other areas of talent, Garden Grove began its GATE arts program to encourage and develop the talents of students in several areas of the arts. Since that time GATE arts in Garden Grove has grown and explored a number of ways to serve the artistically talented both in graphic arts and in music, and become an exciting and vital part of the district's curriculum.

Brian Watkins, Grade 6
Patton School,
Garden Grove USD

Art

In the spring of each year, about two hundred students apply for admission to the GATE

art classes by submitting a portfolio of four-to-six works, done either in class or at home. The portfolios are judged by a panel of art teachers who evaluate them for either obvious talent or not so obvious potential.

For students in grades 4-6 a drawing and painting class meets after school once a week at two different sites in the district, and parents provide transportation. Students are instructed in drawing, working with different media such as oil pastels, tempera, water color, ink, and learning about art history and appreciation.

How do they like it? They love it! "I'm going to try this at home." "I showed my sister how to do this and she's good at it." "I just live for GATE art." Talent needs direction and training say the instructors. The GATE art class gives the students a sense of what they can do and opens "new windows for accomplishment."

The secondary art classes are organized into more specific areas. One of the most valuable is the life drawing class, something most art students don't experience until college, and which is basic to the development of any artist. Photo-realistic art, portrait sculpture, ceramics, and xerography classes have also been offered. Some teachers are from the school district and some are professional artists who enjoy the opportunity to be mentors. Commercial artists have given classes which show students how to prepare camera-ready art for publication. The program is flexible, ready to take advantage of the talent in the community and make it available to students. Visits to museums and artists' studios are also part of the program, and instruction in art history expands understanding.

The secondary program is important in giving students an opportunity to explore the idea of art as a career and show them that an artist doesn't have to starve in a garret to pursue his talent. Students see art as a viable way to make a living, and they meet set designers, graphic artists, artists in television production, product designers, and others who work creatively. Some go on to art schools or an art major at a university. Whether they choose art as a career or simply keep it as an avocation,





Mark Skaggs, Grade 5
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participation in the GATE art program has made art a more vital part of their lives.

Photography

GATE art students also may take part in the photography class, an after-school, parent-transport class like the others. They learn all the technical aspects of photography – how to choose a subject, how to judge light and film speed, and how to develop and print their pictures. They also learn darkroom techniques such as negative manipulation, cropping, and various printing methods. They go on field trips to explore interesting subjects for their pictures. "Give me talent, and I'll give them skills," says their instructor, who adds that the photography class "unleashes talent," gives the students a new way of looking at the world, and helps them grow in confidence and assurance.

Video Production

The third facet of the GATE art program is the video production class. This year the elementary students work together as a group, while secondary students do individual projects, some live action and some animation using a variety of techniques. Depicting poems graphically on videotape has been one of the areas explored. "The class gives students a chance to take an idea from start to finish and to see art come alive," says their instructor. She says they grow in cooperation and the ability to share ideas, and self-esteem blossoms as they

see the results of their efforts.

Students in all three of the graphic arts areas have entered their work in contests and won many awards.

Music

The fourth aspect of the Garden Grove GATE art program is music. Elementary students are recommended by classroom or music teachers for the after-school music classes. Each student learns to read music and play the recorder. Children who play other instruments either with private or school instruction join in small ensembles to play, and some learn to accompany other musicians. They participate in vocal music as well, and the emphasis is always on group work, not solos.

The instructors work on interpretation and polish in performance and how to make listeners feel the music and care about it. The students play for each other, and they are encouraged to offer constructive criticism. The criticism is constructive. "They are wonderfully kind to each other," says their instructor. Teamwork and responsibility to the group are key elements that students learn in the music program, along with increased self-confidence and a sense of being able to give something to others.

In the spring of each year, there is a culminating program in the evening which includes all GATE art and music students. The musicians perform, videotapes are shown, and art is displayed. Parents, teachers, and friends are invited, and youthful talent shines.

But why do all this? Is art really worth it? "Absolutely," says Bernie Jones, arts coordinator for Garden Grove. Artists are functional members of our society. They are the record keepers of what is happening in our culture, the preservers of what we have done. Do scientists and mathematicians need art? Certainly! Left-brain logic and scientific training needs the encouragement of right-brain intuition to set the stage for the quantum leap that characterizes the most exciting scientific discoveries. (Don't forget that Albert Einstein played the violin!) All of the processes of art encourage and develop the higher-level thinking processes, give experience in working with abstract concepts, synthesizing, making choices and evaluating them, and help tie curricular areas together into a coherent and cohesive whole. The arts are a vital part of the GATE picture.

Jean Drum, our new Assistant Editor, has been teaching GATE students for 19 years in Garden Grove USD. Two of her children were in the GATE program, so has experience on both sides of the desk.

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Conservatory of Fine Arts in the Los Angeles Unified School District

by Sheila H. Smith

"...It is likely that some combinations of the home, the teachers, the schools and the society may in large part determine what portions of this potential pool of talent become developed. It is also likely that these same forces may in part, be responsible for much of the great wastage of human potentiality."

...Benjamin S. Bloom

Introduction

The Conservatory of Fine Arts, Gifted/Talented Programs, Los Angeles Unified School District was developed in 1981 by Allyn E. Arnold, retired program coordinator and the late Judd A. Perrine, district advisor. The program, which is conducted on Saturdays at California State University at Los Angeles (under the direction of Alice Hayward, district advisor, and Wayne Moore, co-director) is open only to LAUSD students in grades three through twelve. The program serves as a screening, identification, and instructional program. Schools that have identified or recommended students with talent in a performing art or visual art have the option of having these students participate in a program of drama, dance, voice, or visual arts sponsored by Gifted/Talented Programs and conducted by district and professional personnel.

The Conservatory is not intended to supersede local school arts programs, but is an alternative for those schools that have identified or recommended performing arts or visual arts students and are unable to provide a program for them. Screening programs in Los Angeles Unified School District are developed on the notion that "ability is nothing without opportunity and encouragement." Formal screening programs and processes provide environments where creativity and talent may be developed. Since parents and students are responsible for transportation to the Conservatory, student participation requires individual task commitment, motivation, intense interest, and involvement. These are qualities essential to those who pursue the arts. The Conservatory exposes the talented student to a broad range of disciplines; for instance, the voice student is also coached in drama and movement.

Identification

Identification in the visual arts is conducted by Michael McLinn, district advisor, and a team of experts. Students are invited to a districtwide demonstration and asked to bring a portfolio. The portfolio provides the assessment committee with examples of what applicants consider their best work, what art they create outside school, what they do in school, and the training they are receiving. The on-site demonstration requires realistic and interpretative drawing and yields information about the quality of the student's work, the degree of originality, use of imagination, problem-solving abilities, and application of various media and techniques. In addition, the basic interests and themes which concern the student and are integral to achieving an understanding of student applicants as individuals, can be seen.

In the performing arts audition sessions students are asked to prepare a brief presentation and then are asked to perform new exercises after coaching. The performing arts auditions, like the visual arts demonstrations, require the ability to search for the potentially talented as well as the talented. Students come with varying degrees of training; some have had enriched arts experiences, and some have had limited opportunities.

Essential to the process is the ability for self-recommendation. Often the self-taught student is overlooked by school personnel. This factor recognizes the importance of integrated learning experiences in academic areas which develop all of the senses. Integrated learning gives the talented student opportunities to develop talents and to experience learning which supports individual interests, needs, and abilities.

Program Overview Performing Arts

The Performing Arts Division of the Conservatory of Fine Arts offers singers, dancers, and actors a chance to expand and refine their talents. The program presents the skills that a performer needs, and gives students an opportunity to learn expression, interpretation, and movement. Guest artists from the professional

world of the arts enrich the program by sharing their expertise with the students.

Students learn about the dynamics of the performer-audience relationship during weekly works-in-progress sessions, when various classes share their work with the rest of the Division. At the close of the fall semester there is an open house for parents, and the year culminates in a public performance by all the students of the Performing Arts Division.

During the term students work in the following areas.

Theater

- Acting
- Mime
- Developing an act
- Young people's theater
- Cold reading/auditioning
- Building a character

Dance

- Jazz
- Folklorico
- International folk dance
- Jazz ensemble
- Ballet (beginning and advanced)
- Tap

Music

- Musical theater
- Songwriting
- Voice

Program Overview Visual Arts

The Visual Arts Division exposes students to a wide variety of media. Students have the opportunity to concentrate on projects of a personal interest and to learn from a variety of instructors. Frequent field trips to museums complement the classroom instruction. There is an open house in the fall semester, and an Art Show at the end of the school year.

The sequence of learning opportunities is as follows.

Beginning

- Introduction to various techniques
- Art history related to student's own cultural heritage
- Line, contour, shading, one-point perspective, still life, and landscapes

Intermediate

- Refinement of first year techniques
- Traditional art history
- At least one independent project
- Multipoint perspective, figure drawing, portraits, development of a personal style.

Advanced

- Figure drawing, color theory, composition
- More advanced art techniques
- Extended independent projects

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- Sheila H. Smith, Program Coordinator for Gifted and Talented Education in LAUSD, is a CAG Board member.

My Dream

And so I come to dream myself a rose
with petals of gold
standing in the cool shade of a statue.
I am blind to the radiance
of the glowing, molten sun
raining its light upon me.
My roots intertwine with those of the others,
and dance
as they spread a roof for field mice.

by Julia Coolman, Grade 3
Del Paso Manor School, Sacramento
San Juan USD

Written under the guidance of John Allen Cann
Lisa Holland and Alice Salvatore, teachers

The Pageant of the Arts: An Integrated Arts Program

by John Blaydes

At McCaugh School we believe the arts are so pervasive a part of our cultural heritage and our daily lives that they are an essential part of a balanced educational curriculum. The establishment of a quality arts program is a school goal and the visual and performing arts curriculum literally permeates the school environment. In concert with a rigorous academic program, the staff believes that it is essential for all children to develop a love and appreciation of the arts. It is our goal to enable students to experience their art heritage first hand, express their own creativity, and experience moments of accomplishment, satisfaction, and exaltation.

The McCaugh School Pageant of the Arts provides the opportunity for integration of academic content with the visual and performing arts. The Pageant is a unique study of various art styles and artists which culminates in the reproduction of famous "masterpiece" paintings as life-size tableaux. The Pageant begins in the school media center and classrooms with the study of artists and art styles, including impressionism, abstractionism, and realism. Each year one famous artist is selected for study. Under the direction of media center teacher Lois Cohn, students write a research report on the life and times of the artist, while learning about the culture and geography of the artist's country, and the costumes and customs of the people of that period in history. Students are involved in high-level thinking as they critically analyze and evaluate artistic styles, compare favorites, and reach consensus. Teachers are provided inservices on the chosen artist, classroom art techniques, and an interdisciplinary approach that infuses the arts throughout the curriculum.

In a natural progression, students utilize the actual style and medium of the artist to produce original art under the direction of Shirley Johns, the art lab teacher. A favorite painting by that artist is selected and used as a vehicle for thematic teaching and integrating lessons. This masterpiece is then recreated as a life-sized painting as students work cooperatively to paint a giant canvas in the style of the artist. A casting call is held as students try out and are selected to represent characters or fig-

ures in the painting. Students study the painting carefully and begin to create costumes to match their character. Costumed to match the painting's subjects, students "freeze" in position as the musical theme plays and the curtain opens, revealing a three-dimensional masterpiece. At the conclusion of the tableau, the painting comes to life with music and dance. As the collection grows, the series of "masterpiece" paintings are showcased in a special evening performance - "The Pageant of the Arts." Paintings performed have included such masterpieces as George Seurat's "Sunday Afternoon on the Grand Jatte," Peter Bruegel's "The Wedding Dance," Jackson Pollack's "Autumn Sonata," and this year, Georgia O'Keefe's "Music - Pink and Blue II." Each year a new artist and painting is added to the Pageant and a painting is "retired."

Special choreography is created for each painting and performed by the choreography club, Splash. Splash consists of 75 fifth-grade boys and girls who meet after school each week to learn dance routines. Splash was created by Jean Parks, a third-grade teacher who has a special interest in dance and volunteers her time and talent to choreograph as well as direct the Pageant. Splash is designed for students with little or no experience in dance and brings them the movement and expression through ballet, jazz, modern, folk and aerobic dance. Students eagerly look forward to fifth grade when they can participate in Splash. Dancers receive training in the basic elements of choreography by experiencing the role of dancer through rehearsal, instruction, and technique, and performances throughout the school year. Each year a new dance is choreographed and performed as an interpretation of the artist's masterpiece painting.

Original music is composed or special music is selected to accompany the painting. A professional musician, Matt Reid, composes original music for each new painting. Mr. Reid is a member of a successful musical group and each year conducts student workshops during which he shares his career and musical experiences with the students, who learn techniques of composition and performance. Live perfor-

John Blaydes, Principal of McCaugh Elementary School in Los Alamitos USD, was one of the two recipients from California of the 1991 Kennedy Center School Administrator Awards given for exemplary arts education programs nationwide.

Each student
at McGaugh
sees him or
herself as a
creative artist

mances by artists from the Long Beach Ballet, Orange County Opera, and South Coast Repertory Theater are sponsored by the PTA. The school's chorus of 70 students also performs at the Pageant of the Arts as well as for various community groups throughout the year. The chorus is an outgrowth of the school's quality music program in which students receive weekly lessons on basic music concepts, skills and knowledge featuring the Orff and Kodaly methods which include singing, dancing, rhythms, instrumentation, and performance. Student performances are highly valued. Each student participates in at least one major performance each year and also has the opportunity to perform in our annual school musical. Many of the productions produced by students at McGaugh have been honored for their excellence by the Orange County Department of Education in the annual Drama and Musical Competition. The school's unique "Pageant of the Arts" and "The Making of Splash" videos have been awarded first place in the competition.

Drama at McGaugh School has linked theater arts and the study of literature. The integration of literature has greatly enhanced the language arts curriculum as students act out stories, perform in plays, participate in Reader's Theater, recite poetry, give choral readings, and create puppet shows. Video production has become an important part of our arts program, not only as a record of our dramas, musicals and choral presentations, but as a means for creative expression by students. The school's mini-television studio, located in the media center, is a hub of creative activity as students write, edit, perform, and produce a variety of videos. In cooperation with Comcast Cablevision of Seal Beach, students in the Gifted program, have complete access to the studio facilities, where they learn all camera and technical aspects of video production. Student video crews are trained to videotape school events as they occur throughout the year. Student-produced videos have won county, state, and national awards of excellence.

The commitment by the staff to a quality arts education program is evident in the utili-

zation of the teacher-written art guide, that includes a continuum of art skills. As a result, the classroom art program focuses on process, content, and mechanical skills, while interweaving art history, art appreciation, and critique. Art experiences are provided in each classroom as an outgrowth of social science, science, reading, and other curricular activities. Student art work is displayed throughout the school and is used to enhance the overall appearance of the school setting. McGaugh's on-site art gallery provides students the opportunity to exhibit their own art work as well as to view traveling exhibits or the work of guest artists. The art lab, taught by art teacher Shirley Johns, provides art experiences that supplement and enrich the classroom art program.

The impact of the Pageant of the Arts on student self-esteem, as well as the depth of their knowledge of the arts, is impressive. Students are involved in the acquisition of skills and the process of self-expression in both the academic areas and the visual and performing arts throughout the year. Students clearly express enthusiasm and enjoyment of the arts. Each student at McGaugh sees him or herself as a creative artist and performer. The Pageant of the Arts provides an on-going living museum of art heritage that develops students' pride and ownership in each and every painting. It is wonderful to observe the continuity of comparison from year to year as students make informed aesthetic judgements about each new artist. We believe that the Pageant of the Arts' interdisciplinary approach provides in-depth student experiences that build positive self-esteem, encourage self-discovery and self-expression, develop intrinsic valuing of art, and tap the creative strength of each and every child.

The artist is not a different kind of
person, but every person is a
different kind of artist.

Eric Gill

The Impossible Dream

by James C. Haslip

Marjorie Schmitz opened her violin case and said, "As a summary statement for your school's goal of placing the arts at the center of the curriculum, I thought the following piece was appropriate. We support your efforts very much."

She removed the violin from its case and began to play *The Impossible Dream* from the musical *The Man of La Mancha*. "Never before," she said, "have I used the arts to express my feelings about a school."

Marjorie Schmitz was the lead reviewer for the state-sponsored evaluation of Twain Harte School's program near the end of the 1987-88 school year. The Program Quality Review acknowledged that the school's theme, "The Arts at the Center of the Curriculum," was a noble goal and they wished us well. Well, indeed! By the spring of 1991 state and national honors were pouring in, test scores had risen, and the district's financial reserves had grown.

"I moved into this district because of that school," one parent confided in me, "and I know a lot of other parents who have done the same thing."

The arts are popular among parents and students. It shouldn't be surprising that attendance has improved, staff morale is positive, and many "at risk" youth are succeeding.

"How can we find out if students are gifted in the arts if we only offer token programs?" asked Walt Kaweski, the second full-time music teacher added to the faculty of the 800-pupil, K-8, single-school district. "If children don't start playing an instrument until the fifth grade or later, they often drop out of the program because they don't feel successful right away. It takes time to develop musical talent."

At Twain Harte music specialists begin exposure to this fine art in kindergarten, with lessons twice a week. By the fourth grade, every pupil is playing the recorder and many have learned the violin or keyboard through after-school extra-curricular programs. "We're excited about the future of our band and chorus programs," Gail Buzzard, our first music specialist stated. "We have 83 students in the

marching band now, but we expect that to double in the next two years."

"Scheduling is the key," Kaweski insists. "By having instrumental music during the school day, we're not in conflict with sports programs or limited by transportation problems." In grades 5-8, band and chorus are offered 4 or 5 days a week. In the 7th-8th grade schedule, all pupils have two periods of fine arts and/or computers. They take a minimum of 4 quarters of computer instruction, 2 quarters of visual arts, 1 quarter of drama, and 1 quarter of dance. This allows them to take band or chorus daily. Other pupils have twice as much time in those computer and arts classes. Specialists start weekly instruction by the second grade in art and by the fourth grade in drama. Radio, video, and photography have been offered as electives. Poetry and creative writing are integrated into the language program.

"The most satisfying feeling for me comes from the integration of the arts into the regular program," relates principal Don Moore. "We've all discovered that reading music, doing reader's theater, or using children's art work to inspire writing are powerful substitutes for conventional reading and writing programs." Jim Loughmiller, 7th and 8th grade science teacher, echoes similar sentiments. "How can science concepts be understood without art and photography?" he asserts. "History comes alive through literature and the art projects my kids do," relates Gary Anderson, junior high social studies teacher, "and the critical thinking has become exceptional. I've had high school teachers tell me that they wish they could get their students to think like ours do. We have a thinking curriculum. It's natural to these kids."

"People ask me all of the time, 'How do you pay for this?'," noted Laurie Sylwester, one of the school's four part-time art teachers. "I tell them, 'It's priorities.' That's right, isn't it?"

Yes, that's right. The impossible dream of placing the arts at the core of the curriculum is not so impossible after all when a school takes a leap of faith and makes the arts a priority.

James Haslip is the District Superintendent of Twain Harte-Long Barn Union School District. He can be reached at P.O. Box 339, Twain Harte, CA 95383; 209/586-3266.

Scholarship and the Arts: The Scholarship Programs for the Gifted and Talented at the Idyllwild School of Music and the Arts

by James Zuberbuhler

Overview

The Idyllwild School of Music and the Arts (ISOMATA) is a private non-profit educational institution dedicated to fostering individual participation in the performing and visual arts. The School's programs are designed to involve people of all ages and all levels of ability in the creative process, to encourage exploration of a variety of art forms, to inspire creative excellence, and to promote an understanding of the role of the arts in traditional and contemporary societies.

History

The Idyllwild Arts Foundation was established in 1946 by Max Krone, Dean of the School of Music at the University of Southern California, and his wife Beatrice. The Foundation owns and operates ISOMATA. In 1950, the inaugural summer of arts workshops attracted fifty adults to the Idyllwild campus, primarily teachers seeking to enrich their arts credentials. During successive summers, the combination of the School's rustic setting and informative classes taught by renowned artists encouraged these teachers to return with their students, friends, and families.

As a result, the Summer Program grew to include performing and visual arts workshops and conferences geared to a variety of ages and levels of expertise. In 1964, the Foundation donated the School to the University of Southern California, which administered the summer arts program with input from the Foundation until 1983. In that year the Foundation decided to develop the School as an institution with an independent and nationally recognized identity. It purchased the campus from the University and, after a careful reassessment of its objectives, formulated a detailed master plan for the restructuring and utilization of the School's facilities and resources.

The Foundation began by increasing the number of summer workshops and related programs to accommodate the remarkable growth in the number of participants. The Foundation also realized that by expanding operations to a year-round basis it could make

the best use of its outstanding resources, and at the same time meet a significant arts education need in this country – the need for an independent boarding arts academy in the West. After extensive planning, the Academy opened its doors in the fall of 1986 to seventy-five high school-age pre-professional arts students.

The Summer Program

During the summer there are a series of workshops in the visual, performing and literary arts for participants of all ages and levels of experience. Over 140 workshops, taught by professional artists and performers, include areas such as dance, music, theatre, creative writing, ceramics, painting and drawing, photography, sculpture, papermaking, and printmaking. Distinguished faculty who have participated in the Summer Program include Meredith Willson, Bella Lewitzky, Norman Corwin, Merce Cunningham, John Perry, Francoise Gilot, Harry Sternberg, and Ray Bradbury. A unique Children's Center complements the youth and adult programs. Over 1500 people take advantage of the Summer Program each year.

The Mother Earth Father Sky Native Arts Program

The Mother Earth Father Sky Native Arts Program offers a unique series of workshops and study tours in Native Arts featuring a Native American faculty. The Native Arts Program is dedicated to preserving and developing Native American arts and culture and to improving public knowledge and understanding of this area of our national heritage. Classes and demonstrations are held at the Idyllwild campus. The study tours visit Native American artists throughout the Southwest and Mexico. Lucy Lewis, Juan Quezada, and Michael Kabotie have all helped shape the Program through their extensive involvement.

The Arts Academy

The independent boarding Arts Academy provides 150 young people of exceptional ability in the visual or performing arts with an oppor-

tunity to concentrate on developing their talents in surroundings particularly conducive to creative expression. The Academy operates during the traditional school year and provides a full range of instruction in dance, music, theatre, musical theatre, and the visual arts by a professional arts faculty. Concurrently, the Academy complements this intensive training in the arts with an equally rigorous course of academic studies intended to prepare these students for an advanced liberal arts education.

Students interested in attending the Academy must demonstrate a solid academic background and audition for members of the faculty if they are performing arts candidates, or must submit a portfolio of their work if visual arts applicants. Students do not necessarily come to the School from Gifted and Talented Programs. The Academy enrolls students from across the United States, western Europe, the People's Republic of China, Bulgaria, Japan, the Soviet Union, Korea, and the Republic of China.

The Academy provides gifted students with both the foundation of traditional studies and the in-depth, individual training they will need for a professional career in the arts. Academy classes include ballet, jazz and modern dance, and dance history; music theory, history, and composition; private instruction, ear training, and sight-singing; individual and small ensemble instruction on musical instruments and voice; acting, directing, playwriting, and stagecraft; art history and fundamentals; and design, drawing, painting, photography, and ceramics. Instruction in each area is geared to the ability level of the individual student. Advancement from the preliminary courses to the more demanding is dependent upon the student's performance.

Academy students specializing in the performing arts are also expected to spend a significant portion of their time practicing and rehearsing in preparation for a number of special student performances during the school year. Those majoring in the visual arts work toward producing critically evaluated exhibitions. The ultimate goal of the Academy is to enable students from a range of economic backgrounds to lead well-balanced, independent and complete lives as successful and creative individuals capable of making significant positive contributions to society.

Scholarships

Each year ISOMATA uses donated monies to provide scholarships for more than one-fourth of the children and youth who participate in the Summer Program. Most of these students are from low-income families representing the cultural diversity of Southern California. Many of the students raise their own support through local service clubs, music parents associations, and similar organizations. In short, our scholars "buy in" to the program.

The Gifted Children Scholarship Fund is just one example of how ISOMATA generates support for scholarships for summer students. The Fund was established in 1987 with a grant from the SDB Foundation and a matching grant from the Idyllwild Arts Foundation. These funds provided scholarships for twenty-three students aged eight to thirteen who were identified as gifted and talented and who have a demonstrated financial need. Each year the support for the Fund has grown significantly; last year, fifty-two highly qualified young people were able to experience ISOMATA Summer Program courses designed to challenge their ability and potential.

Appreciation for the benefits of working and learning under professional instructors, and in the company of enthusiastic and motivated peers, was expressed again and again by SDB Scholars. A visual arts student reported: "I don't limit myself so much. I use more imagination and creativity." Music students, in particular, seemed to be inspired by their experience at ISOMATA: "My interest in music grows stronger every time I attend." ... "It was a great program ... the teachers were inspirational" ... "ISOMATA gave me a whole new feeling for music."

Faculty give high marks to SDB Scholars for enthusiasm, for willingness to try new concepts, for getting along with peers, indeed for being excellent role models for other classmates. The majority were self-disciplined, focused, and independently motivated, and displayed leadership qualities which made a marked contribution to the progress of others in the class. Increased public awareness of the program has resulted in a large number of applications for SDB-funded scholarships. These include requests from a number of former SDB Scholars who wish to return to ISOMATA a second or third time. Four SDB scholars were from Nevada, one from Arizona, one from Oregon, and forty-six came from California.

Nine were enrolled in Children's Center courses and forty-three in Youth Program music, theatre, dance, visual arts, and writing classes.

With the establishment of the SBD Gifted and Talented Scholarship Fund as an endowed fund, the school looks forward to continuation of this successful and valuable program.

The Summer Program scholarship budget exceeds \$60,000. This investment pays dividends in terms of students telling other aspiring artists about the ISOMATA Summer Program, encouraging the scholars to be spokespersons for the arts in their schools, and inspiring some young artists to consider attending the Arts Academy in preparation for a career in the arts.

The Native Arts Program provides assistance for students attending its courses, including a number of scholarships designated for Native American students. In the summer of 1990 two Cahuilla and one Navajo received scholarships.

Tuition, room, and board costs at the Arts Academy total approximately \$18,000 annually, although the actual cost of "educating" each student is about \$25,000. The Arts Academy scholarship budget is \$500,000 and fully sixty percent of the Academy students receive scholarships. The Music Department provides an example of how the task of scholarship funding is being accomplished. In 1986 the first Arts Academy student body included just thirteen music majors. With major financial support from the Ahmanson Foundation, over the past five years instrumentalists were recruited from the Soviet Union, Korea, the Republic of China, Bulgaria, Japan, the People's Republic of China and, of course, the United States. In the fall of 1990, the Music Department's goal was realized with the founding of the ISOMATA International Chamber Orchestra composed of thirty-eight highly talented young musicians from throughout the world.

Last fall, the Orchestra performed several concerts in Idyllwild and appeared before other select audiences in Southern California. Based on their performance, the International Chamber Orchestra was invited to accompany the Los Angeles Concert Opera Association's performance of Richard Strauss' opera, *The Gypsy Baron*. On Sunday, January 20, 1991, the Orchestra performed before a sold-out house at the Ambassador Auditorium in Pasadena, California. The reviews were outstanding, and

all those in attendance were amazed at the truly professional performance of these young, high school students. The Orchestra has also recently released a compact disc which was recorded at Evergreen Studio in Burbank, California, the studio founded by Barbra Streisand.

Summary

The Arts Academy at ISOMATA offers a fine academic program which prepares young artists to live active, intelligent lives and a comprehensive arts curricula. The faculty members are selected for their individual ability as artists and as people who wish to share the secrets of their success with young students. The faculty, staff and students create a very special atmosphere of acceptance, support and diligent work.

Finally, ISOMATA is judged by its ability to produce and perform in the arts. Upon graduation, students are selected for universities and conservatories based on portfolios of their work. The college preparatory arts school is judged by the quality of its student exhibitions and the outstanding schools to which its graduates are admitted. Theatre students seek admission to fine drama schools and the Theatre Department is judged by the quality of its productions. In music, performance is everything. Ensemble performance as well as the individual musician's ability to audition successfully for acceptance into a prestigious music school are the critical measures of a fine program. Dancers, on the other hand, are likely to audition for professional companies, attend professional schools or pursue a liberal arts education. ISOMATA graduates have been accepted at prestigious institutions and companies across the country.

ISOMATA combines talented students with artist faculty to create one of the most unusual educational institutions in the world. The Summer Program, the Native Arts Program and the Arts Academy would be severely diminished without the support provided by the scholarship programs which are available at the School.

To know is nothing at all;
to imagine is everything.
Anatole France

Jim Zuberbuhler is the Director of Public Relations and Deputy Director of Development at the Idyllwild School of Music and the Arts. Jim has just begun working in public relations and fund raising after seven years in college and independent school admissions. He lives in Idyllwild and is an active hiker, runner and member of the Riverside Mountain Rescue Unit.

Los Angeles County High School for the Arts

A high school where students are excited to begin each day, where the pace is electric and change constant, where parents, teachers and students work toward a common goal, where dreams soar and achievement is high – this is the Los Angeles County High School for the Arts.

Located on the campus of California State University, Los Angeles, the school is the first public high school to provide specialized arts instruction to highly motivated students from districts throughout Los Angeles County.

The High School has achieved the highest rating for its academic studies program by the State Department of Education by becoming a California Distinguished School in 1990. The quality of the Fine Arts Program would best be represented by the awarding of the Presidential Scholar Award four out of five years since 1987 by National Arts Recognition and Talent Search to an Arts High student.

The 450 students in grades 10 through 12 are actively pursuing a program of enhanced arts and academic education under the auspices of the Los Angeles County Office of Education, governed by the Los Angeles County Board of Education.

The Program

The Los Angeles County High School for the Arts provides all academic and elective courses needed for high school graduation and college entrance requirements. Arts High also offers specialized training to selected students in one or four specific arts areas. The program seeks to meet the unique needs of each individual utilizing:

- * An expanded (8-hour) school day including a full academic schedule as well as

intensive training in the arts.

- * Individualized instruction through small class size.
- * An experienced faculty composed of arts educators, professional artists, and academic teachers.
- * Workshop and demonstration classes presented by master artists.
- * Access to the vast cultural resources of Los Angeles, including museums, theatres, and galleries.
- * Access to the facilities and resources of Cal State L.A.
- * The opportunity to earn university credits concurrently with their high school studies through an optional college credit program.

Jenna Cohen, a 16 year old visual arts student shares her feelings:

"I can't think of any other school where I could have (such) creative freedom. To be able to go to high school with like minds is incredible. This isn't work. It's what I want to be doing with my life."

Eligibility

It is not necessary to have had previous training in the arts to qualify. To meet admission standards, students must:

1. Reside in Los Angeles County at the time of application or complete an inter-district transfer.
2. Achieve a C average (2.0) with no failures in academic classes during the two semesters preceding application. In addition, students must achieve all C's or higher on the final report card of the school year.
3. Submit a minimum of two letters of recommendation.
4. Be entering 10th or 11th grade in September.

The staff is looking for motivated students with desire, potential, and passion for art. If you know a talented young person who would thrive in this kind of school of choice or would like more information about this exciting school, call 213/343-2565.

Without this playing with fantasy,
no creative work has ever yet come to birth.
The debt we owe
to the play of the imagination is incalculable.
Carl Gustav Jung

Summer Music and Art Sessions

A number of summer programs are available for talented young people in music and art.

Marie Walsh Sharpe Art Foundation Summer Seminar

Held at Colorado College in Colorado Springs, Colorado, this is a scholarship program available to artistically gifted high school juniors. The seminar is designed as an institute to offer an intensive visual art studio program for the students. Artists-in-residence serve as the primary instructors. They provide the students with their unique insights, technical expertise, and commitment to art. The two-week institute allows each student to gain a stronger foundation of skills and understanding in the visual arts through experiencing college-level drawing and painting instruction in a studio setting. Sessions concerning careers in art, the development of a portfolio, art history, and small group discussions with artists are part of the program. Students also enjoy a full schedule of evening and weekend activities, painting trips in the mountains, visits to area museums and art events.

The Summer Seminar is open to students who are high school juniors. The Foundation funds tuition, room, and board, and participants are responsible for their own transportation. Information can be obtained by writing to the Summer Seminar, The Marie Walsh Sharpe Foundation, 711 N. Tejon, Suite B, Colorado Springs, CO 80903.

University of the Pacific Summer Institute of Music

The University of the Pacific holds a Summer Institute of Music. The Senior Session Orchestra, Band, and Chorus are one-week sessions open to experienced students who are currently enrolled in grades nine through twelve. Along with instruction in the three major ensembles, a variety of electives are available, including Composition and Arranging, Beginning Guitar, Beginning Piano, Music Theory, Conducting, and Chamber Music for Winds and Strings. In addition each student will participate in Master Classes for his or her instrument or voice.

The Piano Master Class is a two-week session designed for talented school pianists who are currently enrolled in grades eight through

twelve, who have had several years of private instruction, are recommended by their private piano teachers, and submit an acceptable audition tape. The curriculum consists of classes which stress the individual development of keyboard techniques and general musicianship.

Junior Sessions, one for band, one for jazz, and one for orchestra, are open to advanced musicians in grades six through eight. Students participate in Chorus, have daily sectional rehearsals, and participate in master classes on their instruments.

The Pacific Jazz Experience is an intensive week of study and performance open to high school and college students and other interested adults. The faculty is composed of top jazz professionals who are also dedicated to jazz education.

Fees are \$375 a week, which includes room, board, and tuition. For further information, contact the Pacific Summer Music Institute, Conservatory of Music, University of the Pacific, Stockton, CA 95211

Music Academy of the West

In Santa Barbara, the Music Academy of the West sponsors an eight-week Summer Festival. Their aim is to provide the best possible instruction and inspiration for professionally oriented music students, instrumental and vocal, primarily of college and graduate student age. They concentrate on those facets of technique that the professional musician needs most – private tutelage, small ensemble coaching, master classes, and large ensemble or opera experience with their peers, all under the guidance of the best faculty, coaches, directors, and conductors. Students also have the opportunity to hear and observe an outstanding artist faculty in recital, chamber music, and concerto performance.

Admission to the Summer Festival is by audition. Classes are offered in all the orchestra instruments, piano, and voice. The curriculum consists of three components: performance preparation, master classes, and individual lessons. Students also rehearse and play with the Festival Orchestra in public concerts. For

Arts Alliance and Programs for Teachers

The California Alliance for Arts Education

is a component of the education program of the John F. Kennedy Center for the Performing Arts, Washington DC. Contact Jo Ness, Chair 2619 Fairway Ave. Montrose, CA 91020

Music Center Summer Institute for Educators

July 8-18, Los Angeles
Sponsored by the Music Center, LAUSD, LA County Office of Education.
Contact Melinda Williams 213/972-7480.

California Summer Dance/Movement Workshop

for dance educators
August 3-12, UC Irvine
Contact Jacqui Lahr 916/483-3313.

CSU Summer Arts at Humboldt State
July 7 - August 17
Registration by audition or portfolio review
CSU Summer Arts
400 Golden Shore
Long Beach, 90802

further information about the program, auditions, fees, and financial aid write to the Music Academy of the West
1071 Fairway Road
Santa Barbara, CA 93108.

Those living in the Santa Barbara area may also be interested in the Orff-Schulwerk "Music for Children" program offered by the Music Academy of the West during the fall and spring. The program has classes for children from preschool age through sixth grade and is designed to introduce children to music through games and rhythm activities. Further information can be obtained from the Academy.

Cal State LA

Saturday Conservatory of Music

The conservatory gives more individualized help and provides more musical experience than can be offered in the regular school music program. Classes are taught by specialists who are trained music educators. Students in grades four through twelve who have studied their instruments at least six months are eligible.

The fee for each ten week session is \$40. This includes class lessons, theory class, and participation in one of four orchestras with other students at the same stage of development. Beginning classes are offered in voice, guitar, piano, and drums, which may be taken as a second instrument class for an additional \$15.

For more information write or call
CSULA, Sat. Conservatory of Music,
5151 State University Drive
Los Angeles 90032-8102
213/343-4109.

ISOMATA

Idyllwild School of Music and the Arts

Summer Jazz Workshops (July 14-27) for youth and adults (junior high through college age). Courses include performance in big bands and combos, music theory, arranging and improvisational techniques, and master classes. Guest artists and faculty perform with students. Concerts are held at the end of the week. See article about ISOMATA on page 19.

For information write to
Summer Program
P.O. Box 38
Idyllwild, CA 92349

Wildwood Summer Music Camps

Wildwood Summer Music Camps at Cedar Lake are sponsored by Wildwood Music Associates, Inc., a not-for-profit organization.

The intermediate camp is for music students entering grades seven through nine in the fall. Band, Choir, Orchestra, and/or Piano are offered from August 3rd through August 10th, 1991. The senior camp is for grades nine through thirteen who participate in Band, Chamber Music, Choir, Symphony Orchestra, and Piano from August 11th through August 18th, 1991.

For more information contact
Keith W. Nelson, Director
Wildwood Music Camp
P.O. Box 16416, Irvine, CA 92713
714/551-2877.

Fullerton College

Summer Jazz Camp and Summer Concert Band Camp

Fullerton College offers Summer Jazz Camp and Summer Concert Band Camp. The dates are July 7th through July 13th for jazz, and June 23rd through 29th for band. Classes are for rising seventh graders and older. Buckthorn Camp, Idyllwild, is the location for both camps.

For more information contact
Terry Blackley
Fullerton College (Jazz or Band) Camp
321 E. Chapman Ave.
Fullerton, CA 92632-2095
714/525-8165

Interlochen Center for the Arts

An extensive series of offerings in dance, music, theatre arts, and visual arts for students in grades 3-12 is offered every summer in Interlochen, Michigan.

For information contact
Maxine A. Steinmiller
Interlochen Arts Camp
P.O. Box 199
Interlochen, MI 49643-0199
616/276-9221

February 21-23, 1992
30th Annual CAG Conference
CAST A WIDE NET
Long Beach
Don't overlook the
Call for presenters on page 39.

THE THEATRE

Oregon Shakespeare Festival Education Programs

School Visitation Program

Last year 19 actors/teachers in 9 teams traveled the western states in the Fall as part of the annual School Visitation Program. To inquire about next year's schedule, contact the office below.

Summer Seminar for High School Juniors July 29 - August 10

\$725 fee includes the seminar program, tickets to the plays, and room and board at Southern Oregon State College.

Teacher Symposia Shakespeare on the Stage Directing Shakespeare

June 25 - July 6

\$395 includes class costs and theatre tickets.

Shakespeare in the Classroom July 9 - 14

Techniques to use in the classroom

\$295 includes class costs and theatre tickets.

\$650 for both symposia

Education Office

For any of these Oregon Shakespeare Festival Programs contact

Joan Langley
OSF Education Office
Box 158
Ashland, OR 97520
503/482-2111

Playwright in Residence

The Playwrights Project, based in San Diego, offers programs for students in grades 5-12. Residencies introduce the basic elements of playwriting through interactive exercises in which students work as writers, actors, and constructive critics of their own and others' writing. Each residency is led by a playwright or other theatre professional working with groups of up to 30 students, with 15-20 being the preferred group size. Typical residencies meet for 1-2 hours weekly for four or more weeks.

Programs are tailored to the needs of the individual school and its students but skills taught might include:

- Written
 - Developing a personal voice
 - Discovering material about which to write
 - Using the elements of drama: dialogue, action, and imagery
 - Recognizing the power of descriptive language
 - Exploring characterization
- Oral
 - Improvising dialogue
 - Learning voice projection and enunciation
 - Reading aloud: class scripts and published scenes
- Collaborative
 - Trusting others
 - Respecting ideas and attitudes of others
 - Asking questions and giving feedback in a constructive way
 - Working toward a group goal

Fees range from \$480 for an eight-hour program to \$1200 for a twenty-hour residency including an introductory reading by professional actors and a culminating performance by students. There may be additional charges for travel expenses. To receive more information or to schedule a playwright residency contact Larry Hogue at 619/232-6188 in San Diego or Doug Kaback at 213/821-2364 in Los Angeles.

Teaching Toward Intuition: A Look at the Waldorf Schools

by Dennis Kloczek

The Greek philosopher Heraclitus felt that the most important force in the world was fire. For him, fire was the great transformer, the element which represented change, the mysterious symbol of the creative power of the mind. Fire transformed all substances and purified them. Fire and its nascent state, warmth, were seen by Heraclitus to stand behind all transformations in the world. The Lower elements of earth and water instigated and facilitated combinations, transitions and solutions. The Higher element of air affected permutations and transformations. Only fire, with its mystery of warmth, was capable of the great transmutation in which a substance, a species, an idea, or a person was so completely consumed by the enthusiasm of fire that a completely different substance, species, idea, or person was the result of the activity.

In today's world we are often not so exacting in our speech as to be appreciative of such fine shades of meaning. Permutations, transformations and transmutations may be considered by most to be interchangeable terms describing a certain process of change. But like the Eskimo who have twenty-some words for snow, we as educators can find much food for thought in the subtle distinctions between these concepts. As an educator, Heraclitus valued the properties of fire as a sacred gift given by the teacher to the student. Kindling the enthusiasm for true knowledge was a sacred act. In today's world we would say a teacher who brings enthusiasm and warmth to a subject awakens the spirit of creativity in the student. Creative results demand creative methods, and creativity in teaching demands a firm understanding of the difference between permutation and transmutation. These two processes are similar in their high level of functioning, yet very divergent in their outcomes. They exist, as it were, in two very different levels of the cognitive act with a wall between them. The wall is the great wall which some philosophers have erected at the limits of intellectual understanding. The wall is constructed by bits of data cemented together with logic and linear thought patterns. The blueprint for the construction of the wall is the notion of causality. All that exists on this side of the wall of causality

is the familiar landscape of the known. For some teachers education consists of showing students what is known. If students stray too close to the wall of causality and begin to wonder about the landscape on the other side, they usually are told that such places do exist but they are beyond our knowing, or that such thoughts produce no true results that can be measured and are better left alone. Most, sadly, turn away from the mystery at the wall and return to a lifetime of combinations and solutions, content to be in such a well-ordered universe. Still others, stricken by the mystery of the wall itself, form learning strategies where they permute what is already known in endless, clever, manipulations that produce technically innovative models about the wall and its relationship to the landscape of the known.

Present day education places great value on such technical strategies. Innovative manipulation of ever greater volumes of linearly sequenced data is considered by some to be the epitome of the post-modern educational experience. Those who champion such innovative strategies for learning see students functioning at very high levels of efficiency and technical skill in their thinking. Too often, however, this type of technical training lacks the warmth of a truly human experience.

In the pursuit of knowledge, enthusiasm and warmth are kindled by conscious inner activity, by the production of inner images, not the manipulation of outer images. An education which consists primarily of the reception and manipulation of existing linear sequences unconsciously encodes a mode of passivity into the imaginative capacity of cognition, which is the capacity of the cognitive experience to be reflected in the consciousness as an image. Creativity develops when this image, seemingly by itself, suddenly becomes capable of further transformation. In education, if an image is actively formed by the student, a force is liberated in the consciousness that is the well-spring of creativity. With this force the mind can consciously move across the wall of what is "known," into the other landscape of intuited or imaginative knowing. Here, on the other side of intellect, lies the capacity for conscious transmutation and improvisation. The

Dennis Kloczek teaches Goethian Studies at Rudolph Steiner College in Fair Oaks. He formerly taught art and science at the Sacramento Waldorf School. He may be reached at the college at 9200 Fair Oaks Blvd., Fair Oaks, CA 95628.

When we reach
the stage of
thinking where
an idea we are
following
suddenly
appears to run
out of
knowable data,
we reach the
great wall
between the
me and the
unknowable.

primary mode of thought in the imagination is non-linear, acausal and synchronous. Logic keys fail to function, linear sequences reverse, oscillate and dissolve into new, improvised constellations which are so characteristic of the creative state.

A machine, no matter how powerful it is at computing, can not, will not, and should not venture into this sacred state. In creativity, we have crossed the wall between technical procedures with their commands and the higher, more flexible mode of the totally new idea. We have had to sacrifice the terrible certainty of computation and logical proof for the transcendent uncertainty of improvisation and creative experience. This sacrifice is not without its pain and struggle. The struggle to remain actively imaginative requires, paradoxically, that the thinker first be thoroughly familiar with the landscape of the known. To be creative, one must first be able to think logically. This is an absolute imperative. However, this capacity soon leads up to the great wall where we experience a dimming of the logical cognitive capacity. It often happens that a thinker, following a train of ideas, suddenly runs out of "knowing." This is an experience of the great wall. Through continued effort one can push this wall further and further but the wall is always the limiting periphery of the landscape of the known. To navigate in the landscape of the known we use terms, modes, solutions, theories, laws and all other types of pre-formed conclusions to name, combine, categorize and otherwise terminate the inhabitants and fix the topography on the known side of the wall. Through all of the education needed in order to simply learn the names and topography, the human imagination waits, more or less patiently, for its higher nature to be realized by its owner. Once this is recognized, the imagination can then sprout wings and fly over the wall into its true home. The wings of imagination are feathered by the capacity to sustain attention.

At first, we can develop the attention by training the mind to differentiate between things. We name, count, measure, and weigh in order that our consciousness may be brought into focus. This transforms diffuse basic consciousness into consciousness of specific things. This develops attention but it does so at the expense of separating us out from the world. On the other hand, we can now think about the world and create and manipulate images of the

world inside ourselves. The experience of an inner world that is separate from the outer world is a symptom that a mind is developing the capacity for attention, that a mind is gaining cognitive power. It is also the beginning of the building of the wall between what is knowable and what is not. Before developing attention, one simply is. After developing attention, the thinker identifies with or pays attention to whatever is in the field of the attention. When attentive to sensory data, the consciousness is identified with sensory data, and the inner world is dimmed. When attentive to inner logic structures the consciousness is identified with inner logic structures and sensory data ceases to exist. In children, this development divides a world which, as an original experience, was a unity. Out of the dividing, a first, lower "wall" experience between ourselves and the world emerges. We develop attention and lose unity. In the place of the lost sense of unity we put the power of attention, wielded by us exclusively. Teachers are brokers for the commodity of attention. Students who pay attention to their lessons are rewarded with knowledge and more power of attention. As we are educated in attention it may be that we have invested so much power into paying attention that we accrue interest in a subject. This pays great dividends and may eventually result in others paying attention to us. All of these strategies are excellent until we reach the great wall. The lower wall is erected as we divide the world into me / not me. By skillfully paying attention to the "not me," that is, the world, we gain inner power of attention. This is the ability to hold onto an idea and think it through. When we reach the stage of thinking where an idea we are following suddenly appears to run out of *knowable* data, we reach the great wall between the *me* and the *unknowable*. By investing more and more attention we can push the great wall further and further into the realm of ideas. Nonetheless, the great wall still remains as the fundamental imponderable enigma of consciousness studies.

It is at the great wall that the potential for error in education has its most profound manifestation. The attention, which has allowed us to approach the great wall, has been formed on logic and linear cause and effect reasoning. At the great wall the limits of intellect and causality are experienced. The attention, which up to this time has progressed by ever more skillful manipulation of data, finds its field of activity

If you do not
expect the
unexpected
you will not
find it,
for it is not to
be reached by
search or trail.

Heraclitus

severely limited and the prospect of a strange new mental landscape looming large in the future. The problem is that the new landscape is totally devoid of the mental constructs used to build the attention in the first place. The logic and linear causality used to get to the wall will not serve to help us over the wall. The problem here is basically that the attention has become identified with the modes, commands, procedures, and terminologies of the training method. This is a fundamental error because consciousness obviously existed before the modes and terminologies were employed to focus it. The attention was undifferentiated and now it is focused. Sadly, it has given up its original, nascent power of transmutation and improvisation, and is identified with its capacity to retrieve that which it already knows and manipulate it into a change in the established order which, by definition, is an innovation. A deeper sadness is that this profound loss of true creativity for innovation's sake is held to be a viable educational paradigm by a surprising number of educators. When trying to provide for an educational experience in which the imaginative, creative power in a student will be developed, this distinction is crucial. To provide the hardware and technology for innovation will not strike the spark which allows the thinking to move past the great wall. A mind trained to innovation will turn away from the landscape on the other side of the wall and become enraptured by its own technical images. Such a mind will seek to consume images in ever greater numbers as it tries to satisfy the hunger induced by repetitive manipulation of predetermined sets. Such a mind hungers to produce images out of its own improvisational power. It longs to create. Innovation starves the activity of the imagination and creates an inner image hunger. By contrast, to improvise feeds the springs of the true source of creativity within the human mind. To improvise also means to learn to be comfortable with the totally new, to tolerate the ever fluid, unfolding process of eternal becoming. To create requires activity, to innovate suggests passivity, even if it makes changes in that which already exists.

What is more, creativity and improvisation can be taught. It is necessary that the student be given ample opportunities to function in the mental space characterized by the poet Yeats as the state of "negative capability." Educationally this is most readily available

through experiences in the arts. In the arts the problem-solving mode is shifted to include all possible parameters of the problem, not just those instructions given in the operational manual. The solutions of artistic problems do not already exist somewhere in the software. The solutions must be created fresh, right in the chaos of the unresolved constellation.

The result may be technically less adept. The advances are less obvious and are not immediately applicable in a pragmatic market place. And yet, the thinkers who successfully scale the great wall can return from the journey into the higher thought realm laden with gifts to share with their fellow humans. This healing and prophetic role of the arts has always connected artistic images to the religious ideas of the past. What could be divined in the creative realm beyond the wall of intellect was cast into the healing myths of the culture and made visible by the activity of the artists.

The struggle in American education reflects a deeper struggle in American life. We are a highly adept society of technocrats searching for a culture. Popular culture with its throw-away avalanche of images does not provide a fertile ground in which active inner picturing can arise. The media flood of images blocks the image-making process already learned by a technically repressive, task-oriented educational paradigm. Is there no way to inaugurate the flowering of a new cultural movement? Can we educate towards a balance between clear thinking and an active life of feelings?

In the Waldorf school movement the goal is to provide an education in which the intellectual unfolding of children is rhythmically balanced by artistic experiences. The regular performance of dance, drama, music, and the visual arts as an integrated part of every lesson is the hallmark of a Waldorf school. Cultural awareness is enhanced by multi-language offerings from the earliest grades, as well as by historic surveys of the myths and legends of ancient civilizations as an integral part of the curriculum. Mathematics are taught experientially through body movements and clapping games. Later mathematics lessons grow out of the measuring of lengths and volumes for farming and cooking blocks. Teachers are trained to encourage multi-disciplinary approaches in all phases of the curriculum. Retelling of stories by children stimulates the active formation of inner picturing, as does

ON THE LIGHT SIDE

by Jean Watts



Picasso, Honey, let's be a bit less showy now and let the others be noticed.

ena of this world.

In these and many more examples the Waldorf approach to learning seeks to make the inner life of the student reach out to contact the world. The integration of the arts into science and history lessons provides the necessary dynamics to transmute innovation and the manipulation of facts into a truly creative learning experience. Through art the data is digested and put into a fluid motion in the inner life. Here, as thinking begins to play against the wall of the unknown, the dancing and singing, the painting and woodcarving help to lift the problems in mechanics or optics into the realm of the creative, the primal, the truly human.

The rhythmic moving into the linear logic of science and math and out again into the unresolved mental landscape of artistic activity allows the imaginative faculty to weave a field of images into which the conscious mind may read the deeper meanings behind the facts of the visible world.

It is from these creative, unresolved mental states that the most profound and culturally significant ideas arise. Human beings can be educated to be active in the formation of images. They can learn to produce life-enhancing, healing images which promote a deep sense of inner freedom. There is an educational system being practiced today which strives to produce students who will turn into creative, flexible adults capable of transmitting data into culturally fecund ideas. The times require enthusiastic adults with warm compassionate responses to the tremendous problems social, environmental, and cultural. Technology is not the answer to the spiritual malaise. A living education which values inner transformation is the only hope for the future, a future which belongs to those who can live, like Heraclitus, with the idea that the river I step into at this instant is not the same river that I put my foot into just a moment ago. For Heraclitus all life was change, all life was transmutation, chaos, and fire. We need to educate children to be comfortable flowing in the fires of their own unique genius. As teachers, we must heed Heraclitus' admonition that "Education is not like filling a bucket. Education is like building a fire." Can we build the fires of creative enthusiasm in our children by showing them our own struggles to live a vital, creative, imaginative inner life?

In the Waldorf movement we think we can. Indeed we think we must.

extensive work in poetry and drama. Science lessons begin in the lower school with local, then state, geography followed by regional geography. This sequence integrates children into the physical world in such a way that they sense its wholeness, with the result that very little abstraction is presented. Later science lessons in botany and animal studies present the realms of nature as they are found in the world specifically as they are related to the life and pursuits of the human being. Basic chemistry, physics, optics, and mineralogy are presented to the students as exercises in phenomenological observation. In these lessons the laws and the conclusions are not a prime concern. A more important educational goal is to develop the discipline to make accurate, systematic observations free of conjecture and premature conclusions. For students who may be brimming over with facts gathered from television or science books, the accurate observation of a burning leaf or a colored flame may be the beginning of a true interest in the phenom-

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Show Me: Recognizing Spatial Intelligence

By Miri Fleming and Veronica Blake

During the first half of the twentieth century, Albert Einstein, Georgia O'Keefe, and Frank Lloyd Wright dramatically changed the way in which we view the world. They made significant contributions in their respective fields of physics, painting, and architecture. Although in separate and distinct fields of endeavor, Einstein, O'Keefe, and Wright serve as commonly recognized examples of people who were gifted in spatial intelligence.

Spatial intelligence is one of the seven categories of intelligence delineated by Howard Gardner (1983). Spatial intelligence emerges in various ways in different individuals.

- Spatial intelligence can be manifested as artistic abilities, through sculpture and painting.
- Spatial intelligence can be combined with mathematical-logical intelligence as in geometry and architecture.
- Spatial intelligence can be a strong component on which other intelligences rely.

In linguistics, for example, spatial intelligence is involved in creating poetic metaphors or similes, by which visual imagery is transformed into verbal imagery. Spatial intelligence can also be associated with logical and scientific thought in chemistry or physics when one visualizes scientific procedures and their results (Gardner, 1983).

Some capacity for the seven intelligences exists in all people. Those who have high potential in certain intelligences must have the motivation and opportunity to develop those intelligences to achieve or reach high competence (Gardner, 1983). Some students for cultural, economic, and other reasons, however, do not encounter encouragement, opportunity, or appropriate assessment. Therefore, they may not develop their innate capacities to high levels of competence.

Spatial Intelligence and Education

Typically, school activities stress the development of linguistic (verbal) and mathematical-logical (quantitative) intelligence, and promote systematic growth in these two areas of intelligence through instruction and curriculum. Assessment of giftedness usually oc-

curs in these two areas.

Spatial intelligence, however, is not given the same degree of emphasis in schools as is linguistic and logical-mathematical intelligence (Brandt, 1988; Slanker, 1988). Growth and development in linguistic and logical-mathematical intelligence are fostered through the teaching of language arts and mathematics, subjects that are supported by thoroughly developed curricula throughout the school-age years. Yet spatial intelligence is not routinely and systematically taught at all levels through soundly designed curricula (Brandt, 1988; Slanker, 1988). Some knowledge and techniques used in spatial tasks may be taught sporadically in subjects such as geography, drawing, geometry, and woodworking, but these concepts are rarely assessed and taught as significant subject matter for all students at each grade level (Greer, 1984; Broudy, 1979; Bullough and Goldstein, 1984). The only discipline that includes methodical teaching of skills and concepts used in spatial intelligence is art (Walters and Gardner, 1984).

Spatial Intelligence Identification

Related to the sporadic approach to assessment and instruction in spatial intelligence is the difficulty of identifying high levels of competence (Walters and Gardner, 1984). Evaluation of products is the most common way of identifying spatial intelligence (Clark and Zimmerman, 1984). However, the validity of product assessment can be uncertain because many students lack opportunities to learn and practice skills, to develop talent, to present products, and to have their products judged by people knowledgeable in spatial intelligence.

Maker (1986) suggests assessing giftedness in spatial intelligence through the processes of spatial problem solving rather than using product assessment. This type of identification will be beneficial for all students because individuals from special populations may not have been exposed to the concepts tested in the conventional tests used for giftedness identification, or perhaps had little or no opportunity to practice with products considered important or sophisticated.

Maker (1986) suggests three ways for identifying processes of problem solving: "through observation of the individuals involved in the process of solving problems; examination of the products in various stages of completion; and interviews with individuals before, during and after attempting to solve a problem" (p. 2). Collecting information about ways that people highly competent in spatial intelligence approach and solve problems, provides criteria for assessing students' abilities in that intelligence.

Assessing intelligence through the process approach would be beneficial for students with different cultural backgrounds. English language deficiency has prevented such individuals from being identified as gifted when administered traditional group, language-based intelligence tests, and their products are judged by people unaware of contributing cultural or linguistic factors.

In assessing spatial intelligence through the problem-solving process, we bypass both linguistic barriers that may affect identification of competence, and judgement of a product of one cultural group according to the criteria created in another culture.

Relevance to School Settings

Spatial intelligence appears in pure form in the visual arts. Products of the visual arts seem to experience less influence from other intelligences than products of other abilities related to spatial intelligence (Gardner, 1983). For example, in architecture, abilities of spatial intelligence, mathematical-logical intelligence, and personal intelligence are combined when the size, shape, design, location, and use of buildings are considered. The ability to play chess is related to a combination of spatial, mathematical-logical, and personal intelligences, in that skills of pattern perception, geometric memory, and strategy are required (Gardner, 1983). "While one might underestimate the component of spatial thinking in the sciences, the centrality of spatial thinking in the visual arts is self-evident....the sine qua non of graphic artistry inheres in the spatial realm" (Gardner, 1983, pp. 195-196).

Students with higher abilities in the arts might be identified and hopefully served in appropriate programs for the gifted in the arts. But a large portion of academically gifted students participating in school programs for the gifted are identified through the non-verbal

part of tests such as CogAT, Ravens, or WISC-R. This population of gifted in spatial intelligence might have artistic inclinations or might not. How then can we serve these students? The first step is recognizing the characteristics of their intelligence. Spatially intelligent people recognize and organize their conceptual world mainly through visual clues. As mentioned previously, they can combine clues from other intelligences, but the spatial ones are central.

For example, in order to remember how to spell a word, visual people might have to write the word with different spellings, look at them and then decide which is the correct one. Suggesting that students draw or map data will help them solve mathematical problems. To fully understand, visual learners often need to convert ideas and concepts into pictorial schemes, similes, or metaphors, such as: "The organization of the atom is like..."

Recommendations

Giving only oral instructions to spatially intelligent students might result in a failure to perform as required. Organizing events in only a sequential pattern, such as alphabetical lists or in chronological order, is not necessarily appropriate to these students' methods of thinking. We need to adjust teaching strategies to cater to these students' intellectual needs. For example, in language arts, instead of an alphabetical list of words, we could compile a thematic one. In social studies, rather than teaching events in chronological order, we can select a period of time and compare events across places or cultures during that period. By teaching systems and connections of causes and effects, we help visual students organize their world through "webs" and cognitive maps rather than through linear/sequential thinking. Chandler School District in Arizona is a district attempting to appropriately challenge spatially intelligent students. Students who are identified as gifted through the non-verbal portion of the CogAT are clustered in classes where teachers are specially prepared to deal with these particular students' needs. The curriculum used is essentially the same as in other classes, but the teaching strategies emphasize visual clues and visual organization of concepts. These methods help spatially intelligent students become successful. For example, in teaching antonyms and synonyms, traditionally we would write the words on the board, one beside or under the other. Instead, in this

Teaching Strategies for Spatial Learners

- Get eye contact with the child before giving directions. *
- Limit the number of directions presented. *
- Write directions on the board, on overheads, or on paper. *
- Let the child observe others before attempting new tasks. *
- Use a visualization approach to spelling. *
- Have someone teach the child to type, so assignments can be typed on a computer or typewriter. *
- Use fantasy books rich in visual imagery to encourage reading.
- Let child discover his or her own methods of problem-solving. *
- Give child advanced, abstract material—even when he or she has difficulty with easy, sequential tasks. *
- Avoid rote memorization: use more conceptual approaches. *
- Avoid timed tests. *
- Use diagrams, graphs, flow charts, and concept maps.
- Incorporate movies and video tapes in your units.
- Promote and accept non-verbal products.
- Introduce use of computers with graphics.
- ✱ Organize information in "webs" rather than lists.
- Increase use of metaphors and similes.
- Be wholistic, present the whole purpose of unit before breaking it down.
- Encourage visual associations for developmental memory tasks.
- Use maps and three-dimensional manipulatives and artifacts for demonstrations.

(*Silverman & Waters, 1990)

class, the words are written on a continuum that shows the relationship between the words. One word appears on one end of the continuum, while the antonym is shown at the other extreme and the synonym is shown at the same place as the first word. The clue is to show rather than tell!

Another way to help spatially intelligent students succeed in the 'verbal system' is to promote visual products instead of purely verbal ones. Instead of asking students to write an explanation that shows the interdependence of culture and natural environment, we can ask them to explain in a picture or web. Students

could present metaphors of concepts that have been taught instead of trying to define or explain them. Currently such products are given as "creativity promoters" or "extra credit" but they are not given the same attention, respect or academic recognition as written work. Teachers need to assess visual products seriously, with a set of criteria, just as written work is assessed.

When spatially intelligent students encounter difficulty with easy problems, the recommendation is giving them advanced and abstract material rather than giving them easier tasks (Silverman and Waters, 1990). While at first seeming odd, this recommendation is based on the premise that these students need to see the whole picture in order to make sense of its parts. They will find it difficult to understand just one piece of the puzzle without connecting it to the completed puzzle.

Summary

Spatial intelligence is one of several intelligences delineated by Gardner (1983). Students and adults with high spatial intelligence organize their conceptual world through spatial and visual clues.

Teachers need to provide these students with instructional strategies geared toward their particular mode of thinking (see Figure 1 for teaching suggestions). A more sensitive approach to spatially intelligent students could prevent them from losing interest in further learning and becoming underachievers. Instead, they would realize that their spatial intelligence is but a different mode of viewing the world.

This paper is based on research by Blake and Fleming as part of project "Discovery". The project was directed by C. June Maker and coordinated by Shirley Schiever in the College of Education in the University of Arizona, Tucson, AZ. The researchers' purpose was to identify previously unrecognized talent in special populations and to expand the notion of talent in all individuals. This study was conducted through analysis of problem-solving processes in the different intelligences as delineated by Gardner.

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Some painters
transform the sun
into a yellow spot,
others
transform a yellow spot
into the sun.

Pablo Picasso

Youth Leadership Stories Wanted

Two professors at the University of Southern Mississippi are compiling a book based on the leadership experiences of youth. Elementary and secondary students who have demonstrated leadership ability by identifying a need for something new or something to be changed in their school, community, or religious affiliation are encouraged to write their stories of leadership. The story should be no more than 1500 words and should be typed and double-spaced. Please send the leadership stories by July 31, 1991.

Your Leadership Story

Please submit your information in story form.

- I. What was your idea for something new or to be changed in your school, community, or religious affiliation?
- II. What started the idea for your leadership project?
- III. How did you go about developing your ideas?
- IV. Whom did you involve?
- V. What resources did you use, if any?
- VI. What obstacles, if any, did you encounter with your leadership project?
- VII. How long did it take you to complete the project?
- VIII. Describe the setting (community, school, or religious affiliation) in which you conducted your project.
- IX. How did your leadership project affect the lives of others?
- X. How will you continue using your leadership abilities?
- XI. What advice would you give to other students regarding ways to become a more effective leader?
- XII. Information about you:
Name
Age
Address
Gender
Grade Level
Home Phone
Signature

Send the completed story to Dr. Frances A. Karnes, S.S. Box 8207, University of Mississippi, Hattiesburg, MS 39406-8207.

which each student is asked to work with honesty and integrity, and expose the results to the scrutiny of teachers and peers.

Partnerships

During its first three and one-half years of operation, the CSSSA was principally occupied with the establishment of a stable and productive program of high quality. In that it was starting from scratch, the school had an opportunity and a responsibility to include the broader community as it developed its institutional philosophy and curricular approach. In doing so, the CSSSA allowed itself the luxury of invention and has gained access to a wide variety of collaborators. Artists, community members, the business community, teachers, parents, and, of course, students all have had a hand in the evolution from CSSSA the idea, to CSSSA the institution.

The school's initial partnership was mandated by its enabling legislation. By law, the school must obtain a portion of its funding from non-state government sources. The California State Summer School Arts Foundation was founded in the fall of 1986 to seek gifts from corporations, foundations and individuals. Included among over 100 private sector contributors are: Columbia Pictures Entertainment Inc., Atlantic Richfield Company, Walt Disney Company, Roland Music Corp., AT&T, Time Warner, Inc., J. Walter Thompson, and many more. The majority of the donations received by the school have gone toward scholarships and programmatic needs.

Another important CSSSA partnership has been forged through its interaction with local schools and school districts. To inform the 1.5 million eligible students of the programs, the school has tried to forge linkages with local educators. Given the delicate state of the state's arts education infrastructure, making these connections has been a challenge. In a rewarding number of high schools and junior high schools the CSSSA program has become an extension of the ongoing arts education program. In some cases the secondary curriculum is oriented to fulfill the portfolio requirements and performance assignments required by the CSSSA.

County and municipal arts agencies have also provided the school with local information and recruitment presence. Many of these organizations have been designated by their county governments as State-Local Partners to

receive funding from the California Arts Council to support and coordinate local arts activities. They see the CSSSA as an extension of this function and have helped to organize community support for CSSSA students. Each spring the young artists recommended for the CSSSA program are designated "California Arts Scholars" and honored for their achievements by the State-Local Partners in 58 counties.

Advocacy

The large size and geographic diversity of the state, coupled with the CSSSA's own limited resources, has made the school dependent on the willingness of its partners to help spread the word. This past fall a new partnership idea was explored as an adjunct to the school's annual recruitment effort. Recognizing that our most valuable collaborators were the teachers, district officials, parents, and other community members who were already making the case locally for arts education, we began asking ourselves what we could do to help them help us.

In conversations with local arts education proponents it was clear that there was a growing sense of urgency about the continuing deterioration of the arts education infrastructure. With the recent economic downturn, local school districts were again facing cutbacks and, as usual, arts education was a prime candidate for reduction or elimination. More and more, local arts education advocates were finding that their traditional arguments in support of the arts were falling on deaf ears.

Our response was to offer the field a new advocacy strategy based upon our experience advocating for the CSSSA with the private sector, the legislature, and the Governor's Office. To test the waters, we wrote to schools, district offices, and State-Local Partners to ask if our perspective might be of some value to them. The response was overwhelming. The result was a CSSSA orientation workshop entitled *Student Creativity: California's Largest Untapped Natural Resource*, which was presented in various forms at different locations. The workshop was designed specifically to help teachers, parents, local artists, school and government officials, students, and others. Based upon CSSSA research and case histories, the presentation was designed to illustrate how discipline-based arts instruction is integral to the growth of young people, as well as to the communities in which they live.

Five New Arguments in Support of Arts Education

Following are summaries of the basic strategies that were presented in the CSSSA workshops. Although they are described as new arguments, taken separately most of them are not. Their newness has more to do with their perspective than actual content. Rather than advocating from a position of self interest, this approach recognizes the perspective of the community decision maker who is inevitably asking the question: "How will arts education contribute to my meeting the social, political, and economic challenges of my community?" This approach takes the position that arts educators cannot and will not find a place at the table until they are able to communicate that arts education enables the creative process to be used for everyone's benefit.

1. Arts Education is a Basic Educational Reform

Since the publication of *A Nation At Risk: The Imperative for Education Reform*, educators, parents, and civic leaders have sought reforms in education. In response, school systems nationwide have placed a greater emphasis on the generally accepted "building blocks" of basic education: math, science, and the language arts. The conventional wisdom is that the school's job is to prepare students for the work place and the best way to do this is to teach these basics.

A 1989 Assembly Office of Research report, *Arts Education in California: Thriving or Surviving?*, cites evidence that "a more balanced approach to education may well be more advantageous." The report states: "This balanced approach would not de-emphasize the importance of programs in the basic skills, reading, writing, and arithmetic, but would reemphasize programs in the humanities and fine arts. In fact, the evidence in California suggests that in schools where students perform above average academically, they also receive a richer dose of visual and performing arts courses."

Top arts students are highly motivated. It has been estimated that the students selected to attend the California State Summer School for the Arts have studied the equivalent of two full academic years in their art discipline prior to attending the school. A recent study of CSSSA students conducted by UC Santa Cruz researcher Dr. David Harrington indicates that

many of these students experienced their first true academic successes through the arts. Many teachers report that the arts offer an alternative for success and respectability for students who struggle academically, particularly learning disabled and ESL students. They say the discipline these students learn through the arts often carries over to their study of other academic subjects. Some have used the prospect of attending the CSSSA to motivate students to stay in school.

2. Arts Education Helps Maintain our Leadership in the Technological Age

During the last decade the arts have been dramatically transformed through the introduction of new technologies. In areas such as film, music, design, and holography, new technologies adapted by artists have produced unanticipated new applications, and opened new markets.

Arts educators recognize that the artists of the twenty-first century will need to be as familiar with software as they are with glaze chemistry, harmonics, or light boards. To that end innovative curricula in video, music, and visual arts include experience with new ideas and processes and tools that have only recently become available to artists. For many students this is their first exposure to these resources. These new technologies are complex tools that will require increasingly facile and creative minds to put them to their best use. Students who are familiar with the creative applications of new and emerging technology will be an invaluable resource in the new industrial age.

3. Arts Education is a Promising Prevention Strategy

"Art-making" – the study and practice of the creative processes, is inherently empowering. Each day the student artist comes to class he or she is challenged and does battle with the new and unexplored. Arts students are creative pioneers and adventurers. Every day they are asked to go further out on an artistic limb many never knew existed. The challenge is to work honestly with self-discipline, owning the success or failure of their endeavors. Their art-making is an act of great courage.

In his study of CSSSA graduates, Dr. Harrington has discovered that many of the best arts students fall into the profile of "youths most likely to exhibit 'at risk' behavior." Based

upon student interviews and responses to questionnaires he is convinced that they have succeeded in the face of difficult circumstances because their passion for and commitment to art has anchored their lives. The following direct quotes illustrate that fact:

Writing allows me to release, clarify, and define emotions that are confusing to me or that overwhelm me.

When I paint or draw it helps me understand myself and the world I live in. It also helps me cope with problems that come up in my life.

Acting to me is a better escape and gives you a better high than any drug I know. It makes me feel secure, loved, unconfused about my purpose in life, and, most of all, it makes me 'somebody.'

4. Arts Education Contributes to a Responsible, Productive Citizenry

As skilled professionals, arts educators are role models who validate and encourage the talent and hard work exhibited by their top students. Through their interaction with their teachers and guest artists, students become intimately familiar with the regimens needed to acquire and maintain exemplary skills. The artistic discipline they acquire can translate to all of their life's endeavors. Students of the arts are broadened through their learning:

- the difference between adequate and excellent
- to discipline the imagination – using it to grapple with and solve difficult problems
- to accept the responsibility for the success or failure of their own endeavors
- to work with others as a team
- that you never stop learning

These are the working tenets of the arts professional. They are also some of the more significant milestones adolescents must pass on their way to responsible adulthood. As a result of these experiences students emerge stronger, more confident – empowered.

5. Arts Education is a Matter of Community Development

In recent years, the top executives of America's leading companies have been complaining about the lack of creativity and problem-solving abilities exhibited by entry-level college graduates and technical workers. In the words of one frustrated executive they are... "looking for workers, managers, engineers, scientists, and executives who do not

regard apparent dead ends as obstacles but rather the doors of opportunity." Similar sentiments are also being voiced in the public sector where one often hears talk of a leadership deficit. Voters and politicians alike question where we will find the vision, energy and creative spirit needed to tackle society's seemingly unsolvable problems.

The challenges of the next century will be met by citizens with enormous energy and a well developed capacity for imaginative discipline. These are the attributes our communities are looking for in our next generation of leaders. Where will our future citizens acquire these skills? Where will they practice risk-taking, challenging assumptions, and questioning conventional wisdom? Arts education is the laboratory for harnessing the power of the intellect through the discipline of the creative processes. Arts education at its best supports the growth of the imagination and creativity as tools we must employ to succeed in a complex society.

The CSSSA workshop presentations did not advocate that arts education supporters abandon their traditional arguments in favor of these new ones. Rather, it was suggested that they add them to their arsenal. The suggestion was made that they involve "unlikely allies" such as business leaders, social service professionals, and senior citizens in their advocacy efforts to help articulate these arguments. We also warned that these points were useless if advocates could not articulate them with conviction. In many cases though, we actually found that the major difference between the old and the new approach was semantics and vocabulary. (The school plans to revise the workshop to reflect the state's rapidly changing political and economic situation, and to offer it again in the fall of 1991.)

For more information about the CSSSA contact them at 2012 H Street, Room 201, Sacramento, CA 95814; 916/445-8919.

References

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William Cleveland,
Director of the California
State Summer School for
the Arts and Chairman of
the Board of the
California Confederation
of the Arts, is a member
of the Board of Directors
of the National
Conference of Governor's
Schools. He is also a
musician and writer
whose book, *Art in Other
Places: Artists at Work
in America's
Commercial and Social
Institutions* will be
published by Praeger
Press, NY,
in January, 1992.

CURRENT CAG PUBLICATIONS

JUNE, 1991

Since 1961 one of CAG's major goals has been the dissemination of information. The *Communicator* has grown into a journal. A newsletter, the *Intercom*, was added a few years ago. Various committees over the years have been charged with developing booklets, each of which addresses a specific need in the field of gifted education. These publications which are still available are listed here with a brief description. We invite you to order any of them which might assist you in serving gifted and talented young people.

Each of the publications described was the result of a collaborative effort. Since many of the authors are well-known authorities in the field, the list of committee members who worked on each booklet is included.

Districts are invited to order via purchase order if that is more convenient. Private parties may use Mastercard or Visa should they wish to charge purchases.

If you need more information, please contact the CAG office at 818/888-8846.

ASSESSING AND IDENTIFYING STUDENTS FOR GIFTED AND TALENTED PROGRAMS: Recommended Procedures

by Sheila Smith, Sylvia Dean, Sandra Kaplan,
Patrick Phelan, Sharon Russell, and Claudia Spelman
1990, 32 pages, \$3.00

A CAG Inquiry Committee on Identification studied the current research, reviewed district practices, and compiled a handbook of recommended procedures to assist districts in establishing criteria for identification of students for gifted and talented programs. Specific suggestions are made regarding eligibility criteria, methods of search and screening, and appropriate practices to provide all students with an equal chance for identification. A selection of forms, checklists, and letters is included to serve as models for districts to adapt to their own needs.

DEVELOPING POLICIES FOR A GIFTED/TALENTED PROGRAM

by Marge Hoxtor and Sandra Kaplan
1989, 22 pages, \$3.00, spiral bound

Grading practices, curriculum continuity, teacher training and assignment, credit for courses taken elsewhere, removal of students from a program, homework assignments, over-scheduling of the gifted, and underrepresentation of some subgroups – these are all thorny issues which need to be addressed in the policies of your GATE program. CAG convened a policy symposium, identified 14 major problems which are common in present programs, and then developed a workbook to help your school or district plan policies to address these issues. Each topic is introduced with a paragraph giving some thoughts which evolved at the

symposium. There are spaces for entering implications, both positive and negative, for suggesting policy, determining needs, and establishing timelines.

GUIDING GIFTED AND TALENTED STUDENTS

by Paul Sheckler, Marj Gatzke Frye, Carol Smith,
and Joy Malvitz, 1988, 62 pages, \$5.00

This handbook for counselors, parents, and teachers addresses the guidance needs of gifted and talented students by school level – elementary school, middle school, and high school. Separate sections deal with underachieving students and the specific role of parents in guiding the gifted. An extensive bibliography lists over 100 sources which the authors used to compile this book. Attractively formatted and illustrated, the book should prove helpful to all adults who find themselves in a position to play an influential role in the development of gifted and talented children.

IMPROVING DIFFERENTIATED CURRICULA FOR THE GIFTED/TALENTED

by Barbara Clark, Sandra Kaplan, Gloria Burns,
Nona Conner, Fay Fintel, Ruthe Lundy, Janet Ward,
and Elaine Weiner, 1981, 45 pages, \$5.00

- What constitutes differentiated curriculum for gifted and talented students?
- By what standards can one judge the design of a gifted program?
- Why are gifted programs important?

This reference and workbook for educators and parents presents the elements, principles, and criteria which should be considered in planning, developing, and evaluating curricula for gifted and talented students. Included are a developmental sequence to construct differentiated curricula and worksheets to use in planning and evaluation.

SCOBEE CURRICULAR UNITS

by Paul Robinson, Jane Schaffer, and Jacqueline Shimonauuff,
1989, 47 pages, \$5.00

The work of three teachers who were awarded Scobee Curriculum Development grants by CAG is compiled in this publication. The objective of the grants was to honor Commander Dick Scobee of the Challenger while heightening interest in space-related studies in the classroom.

Galactic Colonization for Our Future Astronauts (Jacqueline Shimonauuff) is not really a unit of study, but rather the product of a unit. It is a student-produced work, full of sixth-grade art and imagination, about the possibilities for future colonization by earthlings.

Flying High (Paul Robinson) is a secondary science unit aimed at developing plans for experiments which would be appropriate to conduct on the Space Shuttle through the Get Away Special (GAS) program of NASA.

Search for Truth (Jane Schaffer) is a humanities unit for middle grades which stresses the value and meaning of searching and exploring oneself, others, and the world through literature.

PRESCHOOL/PRIMARY EDUCATION FOR THE GIFTED

Edited by Eileen Swartz with articles by Susan Baum, Barbara Clark, Donnelly Gregory, Robert Haas, Evie Hiatt, Sandra Kaplan, Merle Karnes, Paul Plowman, Sheila Smith, Joyce Van Tassel-Baska, and Anne Wolf
1987, 27 pages, \$2.00

Articles from the January 1987 issue of the *CAG Communicator* were reprinted as a booklet dealing with the education of gifted preschool and primary children from the perspectives of several experts in this field. Topics include school activities appropriate to primary children, selecting literature for beginning readers, identification practices, and meeting the needs of gifted preschoolers at home.

SO YOU WANT TO START A PARENTS' ORGANIZATION: AN INFORMATION PAMPHLET WRITTEN BY PARENTS FOR PARENTS

by Charles Camarda, Carl Disbrow, Doris Disbrow, and Ivan Rowe, 1983, 27 pages, \$5.00

An outline of the steps necessary to begin a parent support group for gifted and talented programs. While the suggested activities are directly related to G/T Programs, the general information would be applicable to any support group. A sample set of by-laws is included as well as sensible suggestions to keep the group on task and to help it to set realistic goals.

BACK ISSUES OF THE COMMUNICATOR

Back issues of the CAG journal, the *Communicator*, are available for \$2 each as long as the supplies last.



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Information for Presenters

1. The Conference Committee is seeking a broad range of workshops. Two areas are to be highlighted this year.
 - The preconference *Celebrating Diversity* will address the changing demographics of California, e.g., serving linguistically or culturally diverse students, using situational identification methods, finding and serving the under-achieving and learning disabled gifted, etc.
 - A mini-conference for parents has been scheduled for Saturday morning.
2. Most workshops are 1-1/4 hours in length. A few double sessions of 2-3/4 hours can be arranged. If your topic requires that presentation format, please indicate below.
3. Expenses for travel and attendance at the conference are the responsibility of each presenter. Presenters who plan to

attend any session at the conference other than the session(s) she/he is presenting must register for the conference. CAG will extend a year's complimentary membership to the primary presenter of each workshop, and will reimburse up to \$25 for copying of handouts.

4. Each presentation room will be equipped with an overhead projector and screen. A limited number of VCR's will be available. If your presentation requires one, please indicate below. Any other AV equipment must be provided by the presenter.
5. Presentation rooms are set theater style. If your workshop must have a table for each participant, please indicate below.
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Please give the name and contact information for a person who could recommend you as a presenter.

Name: _____ Phones: Work: (_____) _____

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Please share this copy of the *Communicator* with a friend when you have finished reading it. He or she might like to use this form to become a CAG member and active supporter of gifted education. Because of CAG's role in lobbying for appropriate education for gifted and talented students, dues payments to CAG are not tax deductible as charitable contributions for Federal income tax purposes.

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COMMUNICATOR

THEMATIC INSTRUCTION

Untangling the Web of Interdisciplinary Thematic Instruction

by Susan L. Feibelman and Sandy Hall-Chiles

We are drowning in the wealth of the information age. We have the information, but no way to organize it.

James Bennet, Foresight Institute

Teacher preparation for implementing secondary gifted programs has typically meant issuing massive prepackaged curriculum documents, providing keys to special classrooms, assigning select groups of students, and sending instructors down the hall to "go do gifted." On the shelves of these classrooms are stacked the state-adopted textbooks, on the desks sit institutionalized instructional objectives, and at the doors stand overwhelmed individuals who often feel powerless to carry out their missions.

The sheer volume and complexity of curriculum materials purporting to answer the specialized needs of secondary gifted students is inundating. Since program adoption is not always a teacher-based decision, their involvement becomes especially imperative at the curriculum development and implementation stage. This is particularly critical if using an interdisciplinary thematic model, due to its highly substantive nature.

Once secondary educators have decided upon this instructional approach as an appropriate matrix for differentiated curriculum for gifted students, then the ascendant question becomes: how to develop thematic interdisciplinary teachers?

Thematic interdisciplinary curriculum de-

velopment efforts for gifted secondary students currently focus on their mastery of imaginative thinking skills common to the disciplines. Thematic experiences lead to student exploration of broad-based issues and trends. This approach speaks to the curricular needs of gifted students because it facilitates:

- opportunities for dialogue and cooperative learning with intellectual peers;
- opportunities to apply productive thinking skills to self-selected studies in order to produce authentic products;
- opportunities to work with mentors to explore real-world applications of abstract concepts; and,
- opportunities to develop leadership.

But, at a more fundamental level, what skills does the teacher of the gifted require to confidently effectuate this approach?

The challenge at present is two-fold. First, teachers of the gifted must develop curriculum which both engages the learner and is perceived as *user friendly* by the teacher. Secondly, and where teachers often reach impasse, is in their search for curriculum development strategies which provide vehicles for making essential, broad-based connections among content areas. They must be guided in ways of recognizing and articulating these relationships in their crafting of a thematic interdisciplinary curriculum. In this way, structure can be used to impose order upon chaos.

The curriculum webbing model provides a viable method for achieving both objectives.

Continued on page 7



GUEST EDITOR'S COLUMN



Eileen Swartz

Beyond Integrating to Interdisciplinarity

Integrating the content areas to formulate a motivating, relevant, and thought-provoking approach to activating the Social Studies framework has always felt natural to me. So it was an easy shift to utilize a "universal" theme and include social studies as one of many disciplines in an interdisciplinary approach to learning.

Such themes as Influences, Patterns, Power, and Change facilitate the use of generalizations. These "big ideas" are proven or disproven by students in their research (both academic and experiential) for facts, using critical thinking skills such as deductive or inductive reasoning to analyze the data collected. As they summarize the data from their investigations, the students generally are involved in a variety of creative activities in the different disciplines that utilize and/or demonstrate their conclusions.

The further connecting of ideas across the disciplines has given additional depth to thematic instruction. For example, let's assume that students have researched the generalization; "Change can be revolutionary or evolutionary" by examining environmentalism (science), sociology (social studies), and art. Interdisciplinarity of ideas could also be examined and evaluated through the perspectives of an anthropologist (social studies), a philosopher, or an economist, depending on the focus or objectives of the particular lesson or study. From this kind of experience in interdisciplinarity, the students will grow in their ability to think in the "bigger picture;" thus, their problem solving skills will have a wider range of applicability in variable situations.

My sense of quality education has been enhanced by encouraging students to "bridge" the disciplines in their thinking. This further perspective provides an additional dimension to both teaching and learning capacity, and increased depth of understanding.

As expressed by a fifth-grade student recently following an interdisciplinary study of Change, "My favorite thing was weaving different subjects and thinking in new ways." Hopefully, this practice will help students experience learning in a way that is not only motivating and interesting, but valuable in their total life experience.

*Eileen Swartz is a Demonstration Teacher at the USC-NCL Teacher Center.
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CAG encourages all interested parties to submit articles for publication. All submissions will be given careful consideration. Photos and camera-ready art work are particularly desirable. Send all material with your name, address, and phone number to *Communicator* Editor, 23684 Schoenborn Street, Canoga Park, CA 91304; 818/888-8846.

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PARENT TO PARENT Ideas to Exchange and Enrich

edited by Liz Mayhew and Terrie Gray

Have you ever wished you had a friend you could be absolutely honest with about the joys and burdens of parenting a gifted child? Someone who understood the unique excitement, concerns and frustrations? We hope the new "Parent to Parent" column, debuting in the January issue of the CAG Communicator, will provide many opportunities for us to strengthen and encourage each other. We also hope to be able to spark long-lasting friendships!

Although we (Liz, in Southern California, and Terrie, in Northern California) have lots of ideas about how this section can be put together, we would like to be responsive to your needs. Featured in almost every issue will be a thematic question to which we will invite responses. These questions will range from interacting with your child, or working harmoniously with the classroom teacher, to shaping district policy. We will launch some of these questions, but hope many will come from you.

The "Parent to Parent" column will be an ideal place for parents to brag a little (or a lot). We are collecting "Good News" anecdotes involving you and your children. Please share your feelings, concerns, ideas, and questions. We would like to hear about your personal goals and how you nurture your own gifts. We encourage you to submit articles and to send us your ideas for articles you would like to write or read. To get us started, please answer a couple of questions for us.

1. How do you tell your friends about your gifted children?
2. How do you explain "gifted" to your children?

We look forward to hearing from you! Please send questions or contributions to:

<i>Northern California</i>	<i>Southern California</i>
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THE VIEW FROM SACRAMENTO

by Barbara Brandes

At the center of a student's educational experience is the curriculum – the student's engagement with the world of ideas in the company of fellow learners, books, and other media—all orchestrated by the teacher. Appropriate differentiation of curriculum for gifted and advanced learners must be based on a shared understanding of what constitutes the core curriculum.

California's curriculum frameworks have been the flagship of educational reform over the past eight years. Collectively, the framework documents set forth principles that represent a new consensus about the disciplines and a synthesis of understanding about the learning process. Often referred to as the "thinking, meaning-centered curriculum," California's new core curriculum provides a much richer vision of academic excellence for our most able learners than any more limited, skill-based curriculum. However, for those of us especially concerned with the education of gifted and advanced learners, what has been missing so far has been clear guidance and task development related to differentiating the core curriculum to provide advanced learning opportunities. The frameworks support the development of curriculum which is complex enough to challenge advanced learners, but they do not specifically address methods of differentiation.



During this past year, participants in our Jacob Javits project, "Building a Coalition for Excellence: Project Open GATE," expressed great interest in curriculum and instructional strategies that nurture academic talent. In a survey of participants at our last teleconference in May, this was the topic selected as the top priority for future staff development activities. Accordingly, we will focus our efforts during 1991-92 on curriculum. We at the California Department of Education (CDE) are currently engaged in a unique collaborative effort with CAG to develop a position paper on differentiating the curriculum to provide advanced learning opportunities. This position paper will be an essential first step in building consensus among educators of the gifted and curriculum leaders on the general principles of differentiation. Staff development events through Project "Open GATE" for 1991-92 will enable curriculum leaders and practitioners to begin to specify and exemplify how such differentiation can occur in the classroom.

I also want to take the opportunity in this column to inform you that CDE is currently engaged in some internal reorganization activities. This reorganization is in part a response to the state budget crisis and reduced operating funds at CDE. However, the reorganization also provides an opportunity to take a fresh look at priorities and to focus our resources and efforts on important aspects of the reform that remain to be accomplished. While final decisions have not been made as of this writing, it appears that the GATE unit will be brought into closer alignment with the department's other leadership activities in curriculum. I see that as an important opportunity for encouraging the dialogue about curriculum to yield stronger support for advanced learning opportunities. Responsibilities associated specifically with gifted and talented education have not yet been announced. CAG will be kept informed as those decisions are made.

PRESIDENT'S COLUMN

Interdisciplinary Thematic Curriculum

The curriculum, or *what* is taught to gifted students and *how* these learning experiences are designed, should be the major justification for a differentiated education for these students. The curriculum rather than the organizational design for teaching or the administration pattern of a program should be the basis for defining and evaluating the differentiated education for gifted students. Although thematic interdisciplinary curriculum did not originate with the education of gifted students, it has been a concept embraced by educators of the gifted as a means of providing differentially for these learners. There have been many reasons for this relationship:

- The study of a theme represented by a universal concept such as CHANGE provides a frame of reference for curricular decision making that enables the teacher or curriculum developer to select appropriately accelerated and/or enriched subject matter (content) and skills (processes) to meet the needs and interests of gifted students. The elastic and abstract qualities of the theme can facilitate the organization of various types of learning opportunities within a single curriculum. For example, CHANGE, the theme, can be an organizing element for the basic study of topical areas such as weather and characterization in the American novel, as well as for the more advanced or sophisticated study of astronomy and satire. The theme facilitates the flexible inclusion of varied topical areas of study, while it provides consistency and comprehensiveness in the curriculum design. It is the theme that allows for the depth of learning advocated by theoreticians as an essential quality of a differentiated curriculum for the gifted.

- The importance of interdisciplinary teaching and learning for gifted students can best be referenced to the qualities of breadth and pace of learning attributed to a differentiated curriculum. The emphasis on making connections between and across disciplines promotes more complex understandings while simultaneously hastening the speed by which the subject matter can be comprehended and assimilated. Interdisciplinary learning demands that the students recognize and analyze the contributions of the topics in the disciplines to the meaning of the theme. Integration and interdisciplinary learning are often not clearly defined. Whereas integrated learning is using the disciplines to enhance the meaning of a given topic, interdisciplinary learning is using the topics in many disciplines to clarify the meaning of a theme and/or generalization. Integration is exemplified in a study of Mexico wherein students write a story about Cinco de Mayo (language arts), discuss economic trends in the country and compute the ratio between the peso and dollar (math), and research mores of the culture (social studies). Interdisciplinary teaching/learning is exemplified by the study of the theme CHANGE wherein students determine how various cultures (social studies), economic systems (math), and literary styles (language arts) have changed either within a specific time period or over many time periods.
- The study of generalizations, principles, and theories is relevant to gifted learners because they activate the use of productive thinking skills (critical and creative thinking, problem solving and logic) in the context of assimilating substan-



Sandra Kaplan

tive subject matter or content. For example, in the study of CHANGE, students are determining the reliability and validity of the generalization: Time is an agent of change. The generalization elaborates the meaning of the theme and provides the impetus for inquiry, dialectical thinking, and independent explorations and interpretations. References to the development of open-ended or divergent and productive thinking, learning-to-learn skills, and independent study are often characteristics of a differentiated curriculum for the gifted. These can be reinforced in either the inductive or deductive analysis of a generalization integral to the study of a theme in an interdisciplinary curriculum. It is the generalization that initiates the learners need to study interdisciplinarily in order to support or negate the meaning of the generalization.

Thematic interdisciplinary curriculum currently is advocated by the California State Frameworks as an important attribute of a curriculum for all students. The contemporary challenge for educators of the gifted is to *refine* the meaning of thematic interdisciplinary curriculum for the gifted and to determine the compatible relationship between gifted and all other students who are learning in a thematic interdisciplinary curriculum.

Sandra Kaplan is President of CAG, Visiting Professor at the University of Southern California, and Associate Director of the National/State-Leadership Training Institute-Gifted/Talented. She may be reached through the CAG office.

A Partnership Venture: Introducing Theme-Based Instruction to Teachers and Parents

by Rena Bonné

The Anderson Program defines itself as a "New York City public school program created in a partnership of parents, school, and district to meet the special needs of children with superior intellectual potential." Since its beginning five years ago, the realization of this partnership has provided its fair share of challenges as well as rewards.

Parents in the Anderson Program participate across the spectrum of parental involvement. They volunteer in the classroom, conduct extensive fundraising campaigns, attend workshops or meetings on a regular basis, and elect representatives who make up the Anderson Advisory Council.

The Council, composed of teachers, school administrators, and parent representatives, meets monthly to discuss issues of general concern to the program. Over the years, Advisory Council meetings have been devoted to questions regarding differentiated curriculum, staff development, and school policy in general.

With such an actively responsive parent body to consider, the program director and teaching staff were well advised to plan the introduction of theme-based instruction carefully. It was necessary for parents first to understand what theme-based teaching really meant and then to apply that understanding in order to assist their children with homework and independent study assignments.

Housed in a heterogeneous public school on the Upper West Side of Manhattan, the Anderson Program maintains two classes on every grade, beginning with kindergarten and continuing to grade five next year. During the summer staff development sessions, each grade-level pair of teachers selected an interdisciplinary theme for the upcoming year. The kindergarten

teachers very appropriately chose Beginnings and, following their lead, the first-grade teachers selected Change. Second-grade teachers opted for Systems, a choice they later discovered to be difficult to implement with their classes. The third- and fourth-grade teachers, sensitive to the affective needs of their children, identified Conflict and Relationships, respectively, as their themes.

Once the themes had been defined, the teachers began to develop their curriculum. Together, they focused on the subject areas in which the thematic ramifications were most obvious. Fourth-grade science, for example, is concerned with endangered species, so the fourth-grade teaching team began to design learning contracts which asked students to think about the relationship between technological progress and the destruction of the natural habitat. One of the second-grade teachers decided she would give added emphasis to her unit on the solar system, while her colleague developed an independent study project in which students researched transportation systems.

Now we were ready for parent orientation. After the independent study and research projects had been planned, the Advisory Council meeting was expanded to a general orientation session for all Anderson parents. We first discussed the move towards an interdisciplinary curriculum and its significance for gifted children. Parents were, by and large, receptive to the idea. In particular, the working definition of knowledge and learning as dynamic processes extending beyond the somewhat arbitrary limitations of specific disciplines, appealed to them.

One teacher from each grade level introduced the theme for the year. This

part of the meeting seemed to provoke the most questions. Parents were curious about the reasons for each selection, and it was not always easy to supply a clear-cut rationale; however, the opportunity to integrate cognitive with affective learning excited the majority of parents in attendance that night.

The last part of the meeting was devoted to homework assignments in terms of theme-based instruction. As always, parents were reminded that their role was to assist the child, rather than completing the project for him or her. We also talked about the ways in which home-centered discussions could incorporate thematic considerations. One second-grade mother suggested that parents survey the different systems in their homes with their children. An expectant kindergarten mother asked about presenting the beginning of a new life to her child's class! A future workshop to consider additional ways of extending thematic instruction into the home is scheduled.

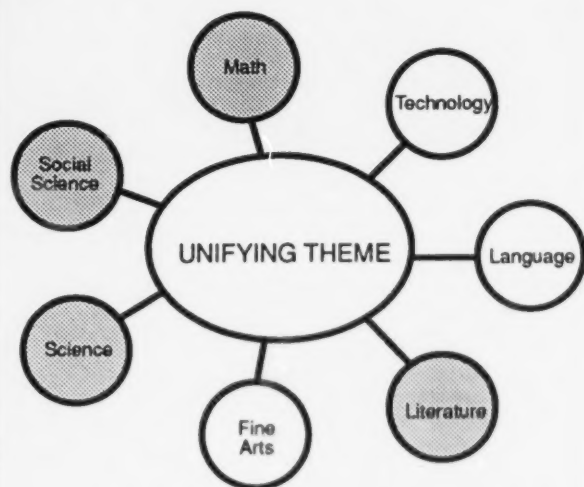
It is unfortunate that, for whatever complex matrix of reasons, any change in curriculum is at first viewed with some degree of suspicion on the part of parents. Perhaps they have lived through too many in too short a time, or perhaps the results have not always been evident; however, this particular venture had an enthusiastic and supportive launching. If, after working together, we can say that the parameters of teaching are limited neither by subject nor by school walls, then we will truly find ourselves in the vanguard of educational reform.

Rena Bonné has directed the Anderson Program for the past two years.

She also has written and edited high school literature texts for students and teachers.

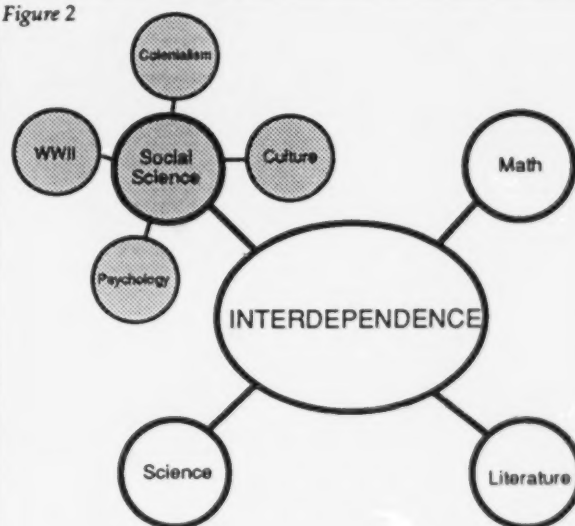
*She can be reached at Public School 9
100 West 84th Street, New York, NY 10024*

Figure 1



What is the unifying theme?
Which disciplines/content areas will be involved in this unit?
 Teachers select the broad fields of study to include in the individual unit to be developed.

Figure 2



What broad topics within each instructional area relate to the theme?
 Teachers should work within content area groups to draw a curriculum web which responds to the theme's issue. For example, social studies teachers have noted that interdependence pervades colonialism, culture, psychology, and WWII.

Since it acts as a catalyst for developing curriculum units, teachers are readily able to discern and subsequently internalize the myriad relationships among content, concepts, and resulting ideas. The curriculum web provides a structure for diagramming content and concept relationships to generate interdisciplinary instructional ideas tied to a theme (see Figure 1).

Guided by sequential productive thinking episodes, teachers are encouraged to work in interdisciplinary teams. By formulating a network for tying content-related topics to a unifying theme (see Figure 2), curriculum writers move naturally from broad-based topics within the content into subject-specific instructional areas. The process allows teachers to speak to both required curriculum demands while also differentiating for gifted students (see Figure 3). The strength in this model is its continual referencing of the unifying theme because it requires teachers to articulate relationships between each content elaboration and the theme as they develop. By abstracting basic content and concepts of the disciplines, teachers can determine the range of possibilities for idea generation as connections emerge across fields

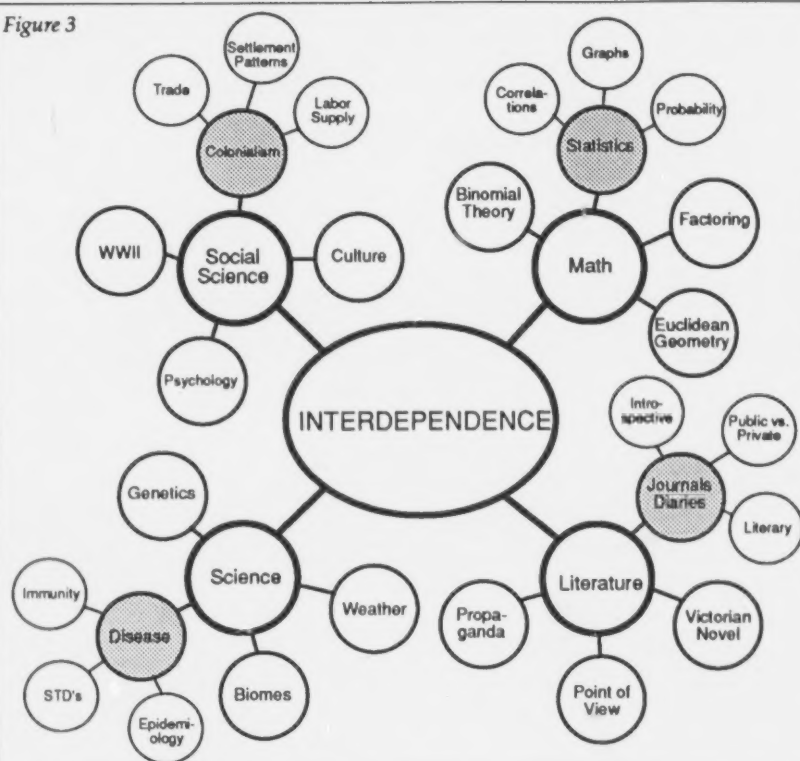
of study (see Figure 4). This process leads to the development of a variety of interdisciplinary learning experiences, to form the underpinnings of thematic curriculum development endeavors (see Figure 5).

The field of gifted education is beginning to address the issue of differentiated curriculum for secondary students while not becoming limited to the vertical acceleration of traditional honors and Advanced Placement course offerings. We are clear in our vision that curriculum for gifted students is not achieved by simply building more repetitious assignments into the content. It is accomplished instead by focusing more intensely upon discovering the commonalities of ideas while traversing the disciplines. Our collective success at achieving this vision depends on the development of teacher competencies in interdisciplinary thematic curriculum writing and implementation. Not until teachers perceive the process as *user friendly* will the larger goal be met through using an interdisciplinary thematic curriculum to differentiate instruction for secondary gifted students.

(References and figure 5 are on page 9.)

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Figure 3

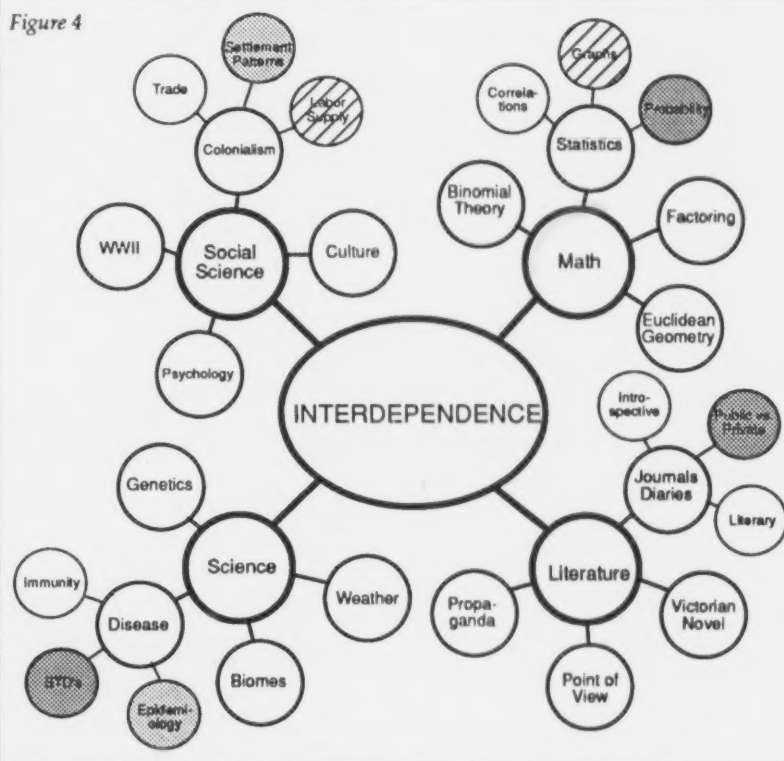


What content area subtopics will be selected to develop the interdisciplinary theme?

Teachers regroup as a team to share content webs. They select ideas from each content area using these criteria to guide their choices:

- do these subtopics clearly relate to the theme?
- can this be taught with resources and time available?
- are students highly interested in studying these topics?
- can this encompass any other existing school-wide emphasis?

Figure 4



Which discrete subtopic elements could relate to those in other instructional content areas?

Teachers write sentences to formalize the relationships among the content area subtopics to provide rationale for their linkage. For example:

- settlement patterns could affect the spread of communicable disease;
- labor supply can be depicted through graphs; and,
- probability might predict an increase in documentation of STD's, etc.

Unifying Theme: Interdependence

Learning experience:

- Students will determine the interdependence of economics, health care, and journalism to produce a persuasive essay to convince imperialist colonizers to improve conditions for the colonized.

In drafting the learning experiences/objectives, teachers would review the component parts of the interdisciplinary curriculum webs and use their previously written relationship sentences as the bases for the content of the curriculum grid above. The next step would be to design a series of activities for each learning experience to work toward mastery of content and concept to give rise to the interdisciplinary ideas.

Figure 5

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Do Concepts Still have a Place in Teaching Social Studies?

by Dorothy Connet

the California Concepts Collection

**Super-Concepts
for Grades K-12**
*Developed by the
California Council
for the Social
Studies*

Change
Conflict
Continuity
Culture
Diversity
Interdependence
(or
Interconnectedness)
Justice
Rights
Scarcity
Technology
Values

Concepts are so basic to social studies learning that they are either building blocks or stumbling blocks to a student's understanding of social studies content. Certainly you can teach content without calling special attention to concepts. Students will acquire some understandings on their own merely because they will organize their thoughts around key terms that seem to have particular recurrent associations. But why not help students consciously build and then identify them? Or why not, at times, merely present them as labels and give examples that help students further define and sort their mental associations?

It was a shock to me when an astute curriculum politician told me in hushed tones and in secret that I should keep the California Concepts project from being published in order to get along well in the political arena. I thought that was absurd. Was I out of step with the drumbeat of current political curriculum reform? I wondered if I had missed some essential revelation that all curriculum people knew. I set out to examine my perceptions and, as a result, became even more convinced of the need to include the consideration of concepts as an important element in one's curriculum planning for teaching social studies at any level.

I participated in the California Concepts project as one of twelve social studies educators from throughout the state who represented all levels of teaching, Grades K-College. We studied the new California History-Social Science Framework, Grades K-12, and came up with what we (through a consensus process) considered to be the major concepts for each grade and a list of Super-Concepts (Figure 1) that seemed to overarch all grade levels.

Prior to serving on this committee, I had analyzed the framework on my own and listed themes, topics, and key concepts for every identifiable topic stated or implied in the framework. I reexamined my lists of concepts to select the ones I thought were the most essential and submitted my choices. The challenges and negotiated changes in the final list were actually fun to experience. (My concept of "fun" is not, however, shared by all.)

The California Concepts Collection was not meant to be the ultimate list. If it can stir interest, be a starting point for others, or if it encourages further dialogue, then it has served its purpose.

Admittedly, I had internalized Hilda Taba's strong conceptual approach to social studies teaching over twenty years ago, but I resisted digging out the list of her key concepts until the selection process was over. It is interesting to compare the California Concepts Collection (based on the new framework) with her list (see Figure 2). As you will note, there are several terms that are similar or related in meaning, although the words vary; e.g., "tradition" and "continuity" imply similar meanings; also the terms "differences" and "diversity" share a kinship. Can a concept smell as sweet by any other name? Methinks, it is so.

Certainly the changes in our own society these past two decades and the current popularity of particular terms can be seen in the word choices in the recent framework and consequently in the Concepts Collection. For example, the addition of the term "technology" reflects recent dominant societal activities and the importance of the terms "justice" and "rights" (particularly "human rights") are current global concerns, not just relics associated with the founding of the United States. The term "scarcity" has always been part of the basic vocabulary in economics, but it is part of the key vocabulary of many disciplines in the social studies today. Due to the depletion of natural resources worldwide and to the increasing awareness of economic competition and conflict between the "haves" and the "havenots" within our country and our world, "scarcity" is now a critical concept in the social studies.

The initial resistance to the recognition of concepts on the part of a few powerful curriculum politicians seemed to be due to the strong emphasis on concepts in the previous frameworks. Calling attention to concepts again could have interfered with promoting the image of a totally new framework. Also, there was a concern that teachers would teach con-

Figure 1

Hilda Taba's Key Concepts for Grades 1-8 Social Studies

Cultural Change (Cultures never remain static)
Modification (As people and environs interact, both change)
Conflict (Interaction involves struggle)
Cooperation (Joint effort)
Causality (Events have antecedents)
Differences (Both the natural and social worlds vary)
Interdependence (People and groups are mutually dependent)
Power (Influence on decision-making)
Societal Control (Liberty is constrained in all societies)
Tradition (To some extent, values and ways of living are retained)
Values (Objects, behaviors, ideas, institutions deemed important)

cepts as isolated vocabulary words and not in context if they were provided with concept lists, I was told.

Another reason for the resistance to concepts was due to the age-old contest between the content and process people, particularly in the turf wars at the university level where careers become identified with particular approaches. The "content" leaders are currently in vogue in the reform and restructuring movement in the drive for historical and cultural literacy. Concepts reek of process thinking and are therefore suspect. To most of us, data, concepts, generalizations, and any and all ways of acquiring them are acceptable and we glean the best available from the harvest of the latest research of academicians.

Although the politicizing of curriculum does affect our choices in teaching and local curriculum development, as we experience several trends and movements over time, the patterns of what works well emerges and we are not limited to the dictates of turf wars. We know we cannot teach narrative history effectively without concepts and vice versa.

The synthesis of content, mental constructs (including concepts), and effective strategies takes place in the mind of the classroom teacher, the most important curriculum director in the educational system. All of this is done in the context of student needs, talents, and experiences, teacher and administrator expertise and attitudes. The availability of time to plan and of resources and equipment are realities that also influence the quality of the school social studies program, sometimes more than attempts at "societal control" by curriculum gurus.

The Role of Concepts In Selecting Literature for History-Social Science

Now that we have put concepts in perspective with the myriad of other considerations, it would seem that concepts are really a minor aspect in selecting literature. Not so. They can help, along with content themes and topics, to focus a program, particularly a literature-based program.

It is amazing how many classrooms are spending large blocks of time on popular works that have minimal relevance to social studies learning and yet are deemed the heart of the social studies program in those classrooms. Usually the rationale for using them is based on their inclusion on somebody's shopping list of

books suggested for integrating English-Language Arts and Social Studies. Most presentations I attend on literature, dwell on the storyline of each book and the fun things you can do with them in follow-up activities. Seldom do you hear how it contributes to the student's conceptual foundation or understandings about major issues or how it provides comparative information that can be researched in other identified sources as well.

One systematic way to analyze the content of each literary work to determine its value to social studies teaching is to create a course outline for the year based on the history-social science framework. To create this guide you could do the following:

1. Record the major themes given in the grade-level descriptions section of the framework.
2. List potential topics for each theme suggested and implied by the narrative there.
3. Identify key concepts that support the themes and topics, and list them beside each topic.

Now select those forms of literature that give maximum support to your program's themes, topics, and concepts. Additionally, you might also determine what attitudes and problem-solving challenges the works offer and whether or not they would appeal to students. Does the literature have a memorable quality? Is it a story well-told? A sample analysis is given in Figure 3.

Students need to use varied forms of literature in social studies. An examination of suggested literature titles in the history-social science framework (1987) resulted in the following identification of varied kinds of works to be used:

Stories	Fairytales	Nursery Rhymes
Folktales	Fables	Historical Fiction
Legends	Myths	Nonfiction
Biographies	Tall Tales	Songs
Poetry	Narratives	Essays
Quotations	Parables	Sermons
Addresses	Speeches	Autobiographies
Plays	Essays	

Also, a variety of formats are given in the framework as informational sources. They include:

Trade books	Oral histories	Diaries
Picture files	Journals	Almanacs
Excerpts	Documents	Codes & Laws
Teachings of famous leaders	Timelines	Maps, Atlases
Dances	Dances	Drama
Drawings	Paintings	Music

Figure 2

Analysis of Literature For use in History-Social Science Grade 3	
Title: <i>Heron Street</i> by Ann Turner Theme(s): Our Local History: Discovering Our Past and Our Traditions	
This book could be used to support any or all of the following Topic(s):	Related Concepts/ Key Terms
Topic 2. The effect that people from the past have on the present life of the local community.	chronology cause/effect community
Topic 3. The ways in which people used the local resources and how they changed the area.	natural resources development exploitation change
Topic 5. The influences of natural environment on the economic and recreational activities of residents in the local area.	landforms water bodies resources
Topic 6. The future needs of the local area and the issues involved. Also, the value of governmental, private industry, and citizen efforts in working to better the quality of life in the local community.	future issues points of view cooperation social participation rights responsibilities
Comments: Continuity and Change concepts are strong themes throughout the book. Would lend itself to comparisons of kinds of growth in our local area. Visual impact strong. Text is poetic and memorable. The best overall book for Grade 3. Related books: <i>No Star Nights</i> ; <i>House on Maple Street</i> .	

Figure 3

Architecture	Games	Memoirs
Debates	Novels	Mock trials
News articles	Letters	Court writings
Propaganda	Posters	Political cartoons

The use of literature in the History-Social Science program can be a natural progression of the current humanities movement from the English-Language Arts into the content areas. It can be exciting and beneficial to social studies learning if the literature is selected within a management plan that promotes the significant content, concepts, and generalizations that are the building blocks of the subject area. Without a plan, the social studies program could evolve into a mere extended language arts program and virtually lose the identity and power it could otherwise offer students in helping them to deal effectively with and to

understand the world in which they live and in which they need to be a viable part.

It is the classroom teacher who effectively devises and manages humanities-rich social studies learning that "writes on children's minds." He or she is probably the most important source of literary experience and of motivation towards social studies inquiry students will have, as this student attests:

"In her classroom our speculations ranged the world. She breathed curiosity into us so that each morning we came to her class carrying new truths, new facts, new ideas, cupped and shielded in our hands like captured butterflies. When she went away, a sadness came over us; but the light did not go out. She had written her signature upon us; the literature of the teacher who writes on children's minds. I have had many teachers who taught me soon forgotten things, but only a few like her who created in me a new direction, a new hunger, a new attitude. I suppose to a large extent I am the unsigned manuscript of that teacher. What deathless power lies in the hands of such a person."

John Steinbeck, *On a Former Teacher*

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- Dorothy Connet is an elementary teacher in the Tustin USD and an educational consultant. She was President of the California Council for the Social Studies in 1990-1991.

Differentiating Content for Secondary Gifted Learners

by James Curry

Draft excerpt from an upcoming publication by the Maine Educators of the Gifted and Talented (MEGAT)

The content dimension of curriculum should be differentiated for gifted learners in order to respond to their academic needs. Traditionally, educators have modified subject matter through strategies of acceleration and enrichment. However, subject matter may also be modified by changing the level of *complexity* within an area of study. This article examines the traditional approaches of acceleration and enrichment and then provides strategies for changing the complexity of content.

Acceleration

Curricular strategies for implementing content acceleration include changing the

- (1) entry level of learning,
- (2) rate of learning, and
- (3) exit level from a learning experience.

Decisions regarding acceleration should be based on a student's academic readiness, motivation, and social maturity, and the ability of the school to support the effort. The strategies of acceleration may be utilized effectively when there exists a well-articulated curriculum that is responsive to the developmental and academic needs of "average" students at specific grade levels and within areas of study. In using acceleration, the curriculum *per se* is not being modified; rather, the "placement" of the student in the curricular sequence is changed.

Changing "entry level": A student begins work in an area of study earlier than is prescribed by the standard curriculum. For example, a student may study algebra in the sixth grade or read a work by Shakespeare in the eighth grade, based on the student's readiness to engage in and successfully complete the work. Management strategies for changing entry level include the use of

- (1) multi-level instructional materials within a classroom,
- (2) skipping a grade,
- (3) early enrollment,
- (4) special summer programs, and
- (5) dual-enrollment scheduling in which a student divides his or her time between two different grade-level classrooms.

Changing "rate of learning": A student moves through a course of study at a faster pace than is prescribed by the standard curriculum. For example, a student may complete a unit of study in biology in two weeks instead of the usual four weeks, or may complete two semesters of mathematics in one semester. Changing the rate of learning over time may allow a student to graduate from high school earlier than her/his age peers. Management strategies for changing the rate of learning include:

- (1) minimizing redundant, time-consuming review assignments,
- (2) eliminating unnecessary rote and drill exercises,
- (3) using self-paced individual or small group work, and
- (4) providing programmed instruction.

Changing "exit level": A student leaves an area of study after demonstrating competencies in terms of content and/or skills. For example, a student may take an examination in order to eliminate the need to continue her/his work at a previously mastered level of study. This may be done for a lesson, a unit, or an entire course. Management strategies for changing exit level include allowing a student to

- (1) "test out" of portions of the curriculum by using a teacher-made or a standardized test,
- (2) submit a portfolio of work completed in the area of study, and/or
- (3) complete a project in which the required work is subsumed in the presentation of materials.

Strategies for acceleration may be combined in various ways. For example, the Advanced Placement Program and the International Baccalaureate Program allow students to change the entry level, rate of learning, and exit level of the regular curriculum. These and other methods of acceleration provide useful means for educators to respond to the needs of academically gifted students who learn rapidly, who retain information well, and who are motivated to learn in an area of study.

The following actions should be avoided

*draft excerpt from
Writing Units That
Challenge High School
Students: A Guidebook
For & By Educators,
(in-press), edited by J.
Samara and J. Curry for
Maine Educators of the
Gifted and Talented
(MEGAT).*

when using the strategies of content acceleration:

- assuming that if a student is ready to move ahead in one academic area then the student should be ready to move ahead in all other academic areas;
- allowing a student to accelerate while in one grade level but not continuing the practice in following grade levels;
- assuming that students will "pick up the basics" someplace else and that direct instruction is, therefore, unnecessary; and
- assuming that all areas of content are equally amenable to acceleration.

Strategies of acceleration allow students to enter, move through, and leave areas of study based on their academic readiness rather than on their chronological age or their grade-level placement.

Enrichment

Enrichment of content is useful in meeting the needs of all students, including gifted learners. The major strength of enrichment is that it provides a means to respond to the intense interests, the broad interests, and the innate curiosities of academically gifted students.

Curricular strategies for implementing content enrichment include changing, in a content area,

- (1) the depth of study,
- (2) the breadth of study, and
- (3) the intensity of study.

As with acceleration, decisions regarding enrichment should be based on a student's academic readiness, motivation, and social maturity, and the ability of the school to support the effort. The concept of enrichment is based on the assumption that the regular curriculum is comprised of *selected* facts, details, rules, and concepts, and that there is additional worthwhile information that may be added to the content as needed. In enrichment, the curriculum is being changed through extension.

Changing "depth": A student studies sophisticated information beyond the parameters set by the standard curriculum. For example, a student might pursue an "in-depth" study focusing on determining the contributions of specific ethnic groups to the development of culture in the United States. The nature of the information should be such that the student is not simply learning more facts, details, and rules. Rather, the student should be learning and reflecting upon beginnings, influences,

causal relationships, and possible future implications within the area of study. More sophisticated types of information will also require abstract thinking skills, advanced research skills, and more complex product forms. Management strategies for changing depth include

- (1) independent study programs,
- (2) protege-mentor programs,
- (3) honors courses, and
- (4) use of sophisticated resources and instructional materials.

Changing "breadth": A student examines related areas of study beyond the parameters set by the standard curriculum. For example, a student might pursue a broad study that focuses on determining the long-term consequences of a specific piece of literature. Areas of affiliated study may include other disciplines, periods of time, cultures, modes of communication, and perceptions. Management strategies for changing breadth include

- (1) learning and resource centers,
- (2) independent study programs,
- (3) multi-disciplinary seminars, and
- (4) issue- or problem-focused programs.

Changing "intensity": A student pursues an area of study beyond the level of commitment and/or the amount of time devoted to it by the regular curriculum. For example, a student might become immersed in a longitudinal study of ways in which social or educational programs impact the roles of adolescents in a specific culture. Management strategies for changing intensity include

- (1) individual or small group work,
- (2) protege-mentor programs,
- (3) apprenticeships and internships, and
- (4) specialization schools.

The following actions should be avoided when using strategies of content enrichment:

- enriching content that really should be accelerated;
- extending content to areas not requiring academic rigor;
- providing "enrichment" that is more "entertainment" than instruction;
- limiting enrichment to simple "exploration."

Strategies of enrichment allow students to engage in academic pursuits that include appropriately sophisticated and challenging content based on ability and interest rather than on their chronological age or their grade-level placement.

Complexity

While the acceleration and enrichment strategies for content differentiation have been used in many programs, some consideration should be given to changing the complexity of the subject matter. This may be done by "upgrading" the content to the study of issues, problems, and themes (Kaplan, 1979).

An "issue" is debatable and not necessarily resolvable. Issue-based curriculum requires that there be some form of genuine "controversy" within an area of study. For example, a student may examine the question, "In a democracy, how should society balance the need for individual freedom with the necessity for powers of central authority?"

It is essential that a student have sufficient background in the area of study to assure that the issue will be considered on merit. Hence, in the example given, the student should read important documents (such as the Code of Hammurabi and the United States Constitution) prior to pursuing the issue. Management strategies for providing issue-based curriculum include

- (1) debate courses,
- (2) advanced academic seminars,
- (3) journalism classes, and
- (4) extended units of study within the regular classroom.

A "problem" is (at least potentially) solvable. There must be a genuine need for solution within the context of the area of study. For example, a student may generate alternative solutions for the problem, "In what innovative and effective ways might a democratic society promote recycling of products and materials in order to protect the environment and improve the economy?"

As with issues, it is essential that a student have sufficient background information to allow for the solving of the problem. Thus, in the example given, the student should have studied reports, editorials, and articles that relate to ecology, public policy, and other related areas. Management strategies for providing problem-based curriculum include

- (1) Future Problem Solving Bowl,
- (2) Odyssey of the Mind,
- (3) Model United Nations, and
- (4) Extended units of study within the regular classroom.

A "theme" is broad-based and may be used within a discipline, between disciplines, or among disciplines. Examples of themes (S.

Kaplan & J. Curry, 1985) include the following: change, community, conflict, exploration, force, patterns, power, structure, and systems. Kaplan (1985) asserts that for a theme to be useful in organizing curriculum, generalizations about the theme must be used. The following generalizations (J. Curry & J. Samara, 1990) could be used for the theme, "patterns":

- patterns have segments that are repeated;
- patterns allow for prediction;
- patterns have an internal order; and
- patterns may have symmetry.

In the Georgia State Department of Education (1990) publication, *Curriculum Guide for the Education of Gifted Students, Grades 9-12*, the following examples are used for showing how the generalization, "patterns allow for prediction," may be embedded into objectives for teaching within and across content areas:

Language Arts:

In their study of tragic heroes, the students will be able to use what they have learned to verify or dispute the assertion that the plays *Hamlet*, *King Lear*, *Macbeth*, and *Othello* have commonalities that allow for prediction regarding the development and the demise of the protagonist. Students will use primary sources to collect data and will present their views in a class discussion.

Mathematics:

In their study of tetrahedrons, the students will be able to use what they have learned about three-dimensional geometric shapes to verify or dispute specific hypotheses regarding the relationships of angulation to volume. They will use models to test ideas and present their ideas through a written report.

Science:

In their study of ecosystems, the students will be able to use what they have learned regarding coastal wetlands to predict the condition of a specific area on the coast of Georgia. Students will use primary and secondary sources and will present their ideas through a report that will describe the environment in terms of 5-, 10-, and 20-year conditions.

Social Studies:

In their study of proletarian revolutions, the students will be able to use examples from history to verify or dispute the proposition that all such events are the result of extreme social and economic inequities between social classes and that future revolutions may, therefore, be predicted. Students will use primary and secondary sources and present their conclusions

in a written and verbal report.

Multi-Disciplinary:

In their study of patterns, the students will be able to use what they have learned to verify or dispute the generalization, "patterns allow for prediction," using examples from literature, mathematics, science, and social studies, and will present their conclusions in a self-selected product.

(J. Curry & J. Samara, 1990, pp 1-11 to 1-12)

By extending the disciplines through the study of themes, teachers can assist students in identifying and understanding the complexities within a discipline. The study of themes responds to some of the characteristics of academically gifted students, including their propensities toward seeing remote associations, making new connections, and understanding the "big ideas" within areas of study. Management strategies for providing thematically based curriculum include:

- (1) honors courses,
- (2) seminars, and
- (3) interdisciplinary units of study used within the regular classroom.

Conclusion

Historically, strategies of acceleration and enrichment have been used in order to differentiate content for gifted learners. While these strategies are effective in responding to some of the academic needs of these students, other student needs might be met by changing the complexity of the content area of study. Through the use of issues, problems, and themes, educators can increase both the complexity and the rigor of the curriculum.

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A thematic classroom for elementary students

Themes in Science: A One-Year Program for Grade 3

by Jacqueline Barber

Reprinted from the Spring/Summer 1991 issue of GEMS Network News, published by the Lawrence Hall of Science, UC Berkeley

3rd Grade

Processes

- observing
- classifying
- noticing and articulating patterns

Themes

- diversity & unity
- matter
- change
- interactions
- structure

6th Grade

Processes

- observing
- classifying
- noticing and articulating patterns
- experimenting

Themes

- constancy
- change
- models
- systems & interactions

8th Grade

Processes

- observing
- classifying
- noticing and articulating patterns
- experimenting
- relating
- inferring
- applying

Themes

- energy
- structure
- scale
- systems & interactions

This represents the third in a series of articles that have appeared in the *GEMS Network News*, describing how GEMS units can be sequenced to present a longer unit of study, unified by several recurring ideas, or "themes." A thematic approach to teaching is one way to address the common problem that teachers encounter – of there being too much material to present to students in a meaningful, digestible way. By presenting a smaller amount of material in more depth, while highlighting some of the recurring big ideas of science that weave through this material, we can help our students to see the "big picture." A glimpse of the "big picture" is not only tremendously satisfying, but it provides students with a framework to support lifelong learning about science.

The first article appeared in the Fall/Winter 1989 *GEMS Network News* and described a one-year GEMS program for Grade 6. A subsequent article appeared in the Fall/Winter 1990 *GEMS Network News* and described a one-year GEMS program for Grade 8. All three GEMS programs described in this series of articles can be modified for students a year or two older or younger. As described in the previous two articles, these one-year GEMS programs are meant to be models of how a teacher might knit a larger curriculum together using GEMS units, while keeping in mind the opportunities for process skill development and the larger themes that underlie these units.

Schools and districts that are well-organized may want to plan and coordinate so that even if each teacher chooses to present different material to her students, there is agreement on what processes and themes to emphasize at a particular grade level. Processes and themes can be selected so that they build from one year to the next, and provide opportunities for students to encounter a big idea, again and again, from different contexts and at different levels of sophistication. We have tried to model this with these three GEMS programs, to better illustrate this sort of spiraling approach.

Some of these connections can be seen in the chart to the left that lists the processes and themes each program emphasizes. Other con-

nections are apparent as you read the three program descriptions and see how spirals occur within a program and between programs.

Of course, there are countless ways to sequence skills and themes to emphasize. For instance, we could have chosen to emphasize different skills and themes using the same sequence of GEMS units. Or we could have chosen to focus on an entirely different sequence of GEMS units and emphasized the same skills and themes. There's great fun and challenge in seeing and making the connections yourself. The curriculum program you plan will likely reflect your situation and interests, the objectives of your grade-level, school, district, and/or state guidelines, and the resources that are available to you.

In the third-grade year-long program, we chose to focus on the processes of observing, classifying, and noticing and articulating patterns. These skills are very appropriate for young students, and help build a foundation for all subsequent study of science. We selected the themes of diversity & unity, change, matter, structure, and interactions,* because those are the threads we saw that tied together our favorite GEMS units for third graders.

* For this grade level, we listed the usual theme of "Systems and Interactions" only as "Interactions," on the assumption that exploring "Interactions" in the early primary level is an excellent way to lay the groundwork for "Systems and Interactions" in subsequent grades.

September

Animal Defenses is an enchanting unit that involves students in a dinosaur drama. Children add defensive structures to an imaginary defenseless animal. These now "defended" animals stand up to Tyrannosaurus rex, one at a time, as they show off their new defensive structures. In subsequent sessions, students differentiate between defensive structures and behaviors as they learn about the defenses of modern day animals. Predator/prey interactions become the focus as students describe (and differentiate between) the structures and behaviors that enable predator animals to seek

their prey, and the structures and behaviors that enable prey animals to defend themselves from predators. These activities provide opportunities for students to observe the various defensive structures that animals have, to classify them (those are claws, that's a horn) and to notice and articulate patterns (meat-eating animals have sharp teeth, prey animals often have eyes on the sides of their heads.)

October

Liquid Explorations enables students to explore the properties of liquids. The theme of diversity & unity is key as students observe many different liquids. They articulate what is the same about all of them and what is different. Students play a classification game to group liquids by their attributes, make a graph of their favorite beverages, and go on to classify liquids which are safe to drink and those that are not. Students learn that matter is the name for all of the "stuff" of the universe. Solids, liquids, and gases are the main forms of matter.

Students go on to investigate the properties of matter (liquids) as they observe how food coloring moves through different liquids, the shape of a drop of water and a drop of oil, and how some liquids mix and other don't. These investigations result in creating "secret salad dressing" recipes and an "ocean in a bottle." Again, observation, classification, and noticing and articulating patterns are central to this unit. Making a bowl of "spooky" punch for Halloween using dry ice and fruit juice is a festive way to end this exploration of liquids.

November and December

Involving Dissolving launches students into the study of dissolving, evaporation, and crystallization as they investigate the interactions between solids and liquids. Students dissolve eggshells in vinegar, create a "starry night" as salt crystals emerge on black paper, make tasty homemade "gel-o," and create colorful "stained glass" holiday window ornaments.

Students carefully observe and describe a solid and a liquid, and then predict what will happen when they mix them together. Through this and other activities, students observe firsthand as substances seem to disappear, or dissolve. They experiment with substances that dissolve in water and substances that don't. They observe things that dissolve quickly, and others that take a long time to dissolve (classification). They go on to discover that the substances are not really gone, as they observe the changes that occur to the liquids. Again and

again, students are asked, "Tell me how the liquid changed," and they describe what they notice in their own words.

These engaging activities focus students on investigating the properties of matter, on the interactions between solids and liquids, on noticing change, and in observing the structure of crystals. Students also encounter diversity & unity as they consider how all situations of dissolving are the same and how they are different.

January

Fingerprinting is a great way to win your students' attention back after the holidays. Students use a simple technique to take their own fingerprints. They spend time observing and devising their own classification schemes for sorting fingerprints as they notice a pattern of similarities among prints. They go on to learn the official classification scheme used by Scotland Yard and use it to solve a mystery. Again students are launched into the notion of diversity & unity as they consider the similarities and variations of the structure of fingerprints.

February

Crime Lab Chemistry enables students to continue to sleuth out mysteries of science as they use the technique of paper chromatography to determine which of several pens was used to write a ransom note. Students focus on how the black ink changes as it interacts with the water and paper in the chromatography test. Extension activities lead students to doing chromatography art projects and writing their own resolution of the mystery.

March

Hide a Butterfly ushers in spring as children create a large mural of a meadow in blossom, make paper butterflies and bird-puppets to enact "The Butterfly Play," and learn about protective coloration. Students discover things about the structure of flowers and butterflies as they make and play with them. They role play the interactions between butterflies, flowers, and birds in the drama. Teachers can have students classify the flowers and butterflies they made (which butterflies are red, which are yellow; how many flowers have three stamens, how many four, etc.). Teachers can extend the unit to exploring the changes in the life cycle of a butterfly.

April and May

Buzzing a Hive is an extensive unit in which students learn about the complex social behavior, communication, and hive environment of

Continued on page 33

T E C H N E T

JUMP THE PENMANSHIP HURDLE: KEYBOARDING

by Pat Lawrence

Do we sometimes assume that kids who talk well can automatically write fluently and competently? Only too often we may be frustrated by bright students who balk or fail to perform in writing tasks, even though they have excellent ideas and are very creative in other modes of expression. Have you ever asked your lone GATE student for a report, then wished for better results? Do you recognize the boy who cannot cope with penmanship, laboriously carving out symbols until he crumples the paper and refuses to go on? How about the child who has so many ideas, starts so many topics, collects research notes all over the place, but cannot organize them into a simple paragraph or essay? What can we do for the children who won't ever start a writing project, fearing that it can't be as perfect as they know it should be?

These children (like most adults) need the powerful tools available to us in word processing and text handling with computers. It is really far easier to help them succeed than it is to repair their damaged egos and recover lost opportunities. The tools needed are less complicated and less costly than ever, and you probably already have quite serviceable software and some computer access time available. (If you don't, then you really must mount a crusade to acquire some; here are some reasons to try.) The computer-aided writing process begins with keyboarding. These simple classroom procedures can work in a one-computer class or with lab access.

Modeling, Instruction

One of the most effective ways to help motivate and empower gifted reluctant writers is with keyboarding instruction. This will open the door to more fluent creative writing processes and useful publishing activities.

As early as second or third grade, students

begin with a paper copy of a keyboard on their own desk, (perhaps laminated for durability!) Using a transparency on overhead projector, the teacher demonstrates specific fingering patterns, encourages the use of all fingers in standard positions; students imitate teacher's modeling on their desk-papers.

Keep it simple; show home row using all eight fingers, with "f" and "j" as locator keys or "home guides". As they touch and say key names "a-s-d-f—j-k-l-;" (semicolon)," students learn key locations and hand positions. Lead the students through naming and touching all the rows and columns of keys. (Even if results are not perfect, this familiarity speeds up the hunt-and-peck process commonly used by elementary students.)

While spelling little words such as "dad, as, fast, go, love, luck, hit," students are led to see the patterns for each finger traveling in diagonal rows with pointer fingers reaching into the center to do double duty. As needed in their writing, the teacher shows the uses of space bar and return, delete and tab keys. Children make up other exercises, such as locating all the vowels, finding the alphabet in order, making up can-do word lists, and spelling names.

After several such five-minute sponge-type introduction activities, students continue on their own time, practicing with a partner in or out of computer lab. Practicing with basic high-frequency word lists used in reading enables the child to write all those words almost automatically. Keyboarding is a motor skill that is developed through rote practice; like penmanship, it should become transparent while thinking.

Practice, Benefits

Software available for extended, structured keyboarding practice includes *Key Words* from

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WRITING PARALLEL POETRY

by Carrie Millat

"Let's write poetry!" may intimidate your students. Here's a way to help them feel comfortable, using natural dialogue and prompted writing within word processing software. Using this technique of parallel or dialogue poetry, students can create unique pieces in response to all types of poetry.

Lesson Objectives: Students listen to poetry, respond to poetic expressions, discuss and practice dialoguing, describe their experiences with poetry, write and analyze how poetry is written.

Outcome: Students write a piece of poetry paralleling a poem read by the teacher; then they compose other parallel poems using a prompted writing frame created on the computer word processing program.

Teacher preparation: Moderate (to prepare prompts by entering poems.)

Lesson time: 1-2 weeks, mostly independent computer time

Environment: classroom or computer lab

Computer requirements: Apple II family

Software: *Magic Slate II, Bank Street Writer III, FrEdWriter; Children's Writing and Publishing Center*

Process:

Week 1

Choose a simple poem that you enjoy. For this example a Navajo Indian chant was used with fifth graders. After hearing it read and doing choral reading aloud, students discuss their feelings about the poetry; they share impressions and understanding of the poem. Talk about dialoguing as a natural, comfortable way to express ourselves; gifted students will enjoy the idea of communicating with a poet, of 'give-and-take' on a personal basis. Help students practice giving their own ideas orally in response to a line you read. Encourage them to express what comes naturally, not trying to 'figure out' or 'think up' a line of response.

After modeling this activity with a few lines orally, ask students to write their own personal response after you read a line. Our students (with some discussion and consensus building) responded to each line of the chant below with the line italicized on the right:

In the house of long life, there I wander;	<i>My life from birth to death I travel to the end.</i>
In the house of happiness, there I wander.	<i>Happy is my place in life, It will be with me always.</i>
Beauty before me, with it I wander;	<i>The future holds more awe, I do not know where life will take me.</i>
Beauty behind me, with it I wander.	<i>Memories of past beauty, May it stay with me always...</i>
Beauty above me, with it I wander;	
Beauty below me, with it I wander.	
Beauty all around me, with it I wander;	
In old age traveling, with it I wander;	
On the beautiful trail am I; with it I wander.	

Carrie Millat is a 3-4 grade teacher in Santa Ana USD

WRITING PARALLEL POETRY

Week 2: Composing at computer

To introduce children to writing parallel poetry using the dialogue technique and word processor, use the planner feature and frame prompts of Magic Slate II. Display the text to a whole class using an overhead projector with a PC Viewer hooked to the computer, or have a small group gather around a monitor. Show the first line as a prompt; have students volunteer a line to enter in response. After writing a few lines of response, demonstrate how these first responses can be revised, edited and moved around. After the responses are arranged satisfactorily, remove the prompts, and print only the response poetry to screen or paper. See how well this stands alone as an original creation.

Using a teacher-prepared disk with other prompts from a variety of poems, each student may independently enter unique responses, save to disk with their own title, then print. Children share their creations with a partner for reaction and clarification, then they may publish or keep them in their personal portfolio.

Extensions, Alternatives

As students discuss the process and experiment successfully with writing, they mimic models and compare many styles of writing. Many teacher tools are available to help us with this complex process. The *WriteOn Series* from Humanities Software is an extensive collection of beautifully structured writing prompts. This comprehensive whole-language K-12 integrated writing/reading curriculum, with whole-language approach to literature-based writing, makes it easy for teachers and students to develop the art of communication. Directed by Jon Madian, author and poet, *WriteOn Series* content helps teachers meet individual needs and differentiate curriculum for all students. (It's also been made easy to fit your word processing software, hardware, and budget.)

Other early grade introductions to writing include Magic Slate's *I Can Write*, and Learning Company's *Writer Rabbit* (try the favorite, *Silly Story Party*). For later grades, *Bank Street Writer III* develops advanced editing and style techniques, with thesaurus and spell checker. Naturally, illustrating and publishing are motivating; thus the popularity of *Print Shop* and *Children's Writing and Publishing Center*. With technology's tools, you and your students will love the writing process.

Humanities Software. This excellent language-based system develops speed and accuracy, finger placement, and word processing editing skills. The short activities with fun language are naturally motivating; no "game" distractor is needed. Schedule students for 20-minute sessions, two or three times weekly, with a partner who simultaneously uses a paper keyboard and encourages proper finger placement and no-peeking at keys. With this good-natured peer/self-monitoring and computer-managed progress feedback, GATE students develop reasonable keyboard proficiency in about three months.

If students are already using a computer for games or to write simple cards, banners, and essays, they are forming habits, good or bad. By directing their efforts toward efficient keyboarding, not waiting for formal typing courses in junior high school, we help students make the most of available time on computers. Gifted students enjoy this multisensory learning; saying letters aloud, seeing words in regions, and communicating without the ordeal of forming letters. They also feel empowered with new tools used by adults. Gifted youngsters like the autonomy of private practice and self-monitoring growth; with some encouragement and modeling they thrive.

Some teachers have students practice entering text by copying previously written compositions onto a computer to be printed. This allows children to develop the mechanics of word processing without having to conjure up content. This is justifiable as practice in keyboarding and word processing skills, but is only preliminary to the "writing process."

Two good activities help develop fluency for writing ideas: invisible writing (with the monitor turned dark until thoughts are completed) as described by Steven Marcus, and telegraph writing developed by June Dodge. (Monitor cables are switched between computers so the writer sees and replies only to what a computer partner has written.) Students concentrate on writing rather than editing; they make corrections only when the need for clarification is seen.

We hope you will discover the motivation and success possible in developing the Writing Process with a computer. The lesson plan in this issue is geared toward elementary grade use, but could be applicable at any age. Readers are invited to share their experiences and favorite applications with TechNet readers. If your students already use computers regularly for writing, or any subject, please write us and share your expertise.

CALENDAR OF EVENTS

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Santa Clara, CA

For information:

CUE, Inc.
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Santa Clara, CA 95054
or Gloria Gibson, 408/492-9197

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Let us know about technology conferences in your area. Information should be received two to three months before the conference date.

Product Information

Inclusion of names or descriptions of software and/or hardware products in this publication is for information only. It does not imply endorsement by TechNet editors or the California Association for the Gifted.

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Let's Hear It from the Teachers . . .

Thematic Instruction

by Cynthia Ratzlaff

Recently I had the pleasure of receiving ten letters from some of my former third grade gifted students at Bennett-Kew Elementary in Inglewood. They are now fifth graders at a nearby campus. Some thanked me for making third grade fun, others liked the way I let them

successfully using the techniques with my gifted third graders ever since. I use the theme of patterns to integrate the disciplines and develop creative and abstract thinking. Using key words and generalizations about patterns, the students learned to gather information about any subject, apply it to the generalization, analyze it, prove the generalization, and move from the concrete to the abstract and vice versa. I have found the theme of patterns especially effective in implementing the current California State Framework whose elements are already integrated according to topics. Differentiating the already thematic-based curriculum to fit the needs of gifted students precipitates naturally and easily.

One generalization about patterns that my students especially like is "patterns are made up of elements that are repeated." This year my students developed wonderfully creative products. For example, when applying the generalization to literature, students developed charts to show repeated themes such as survival, love, friendship, parent-child relationships, etc. They also made charts to show that there was a problem/goal/event/solution pattern in other literature books they read. In science, they made models and drawings to prove how elements are repeated in the phases of the moon, the orbits of the planets, and the seasons on earth. As we followed the Gulf Crisis, the students researched other wars and observed, graphed, and listed the similarities and differences. When my students were introduced to poetry writing and understood the powerful effect that repetition can have in poetry, they integrated information learned in other disciplines to create original and very insightful poems. On the next page are three examples: one integrates science, one social studies, and one the world and the poet herself!

For me, the thematic approach is an effective vehicle for teaching the things that I know. For the students, it becomes a vehicle to go beyond what is taught to a greater understanding and use of their own potential. For all of us, it is motivating, challenging, and fun. It just plain makes good sense.



have debates in class, many mentioned the wonderful literature we had read. But the one thing most remembered was how they learned to look for patterns everywhere around them. One student even mentioned how she could remember the time she discovered that all her school subjects could weave together to make a pattern. Two students vividly recalled "the pattern lady," as they dubbed Eileen Swartz, then the facilitator for the GATE program in Inglewood schools. She taught several creative introductory lessons on the theme of patterns in my classroom. The effect of our thematic instruction was evident and gladly received in these letters.

I was first introduced to the thematic approach in the summer of 1988 when I had the opportunity to attend seminars and workshops developed by Dr. Sandra Kaplan at the USC Teacher Training Institute for teachers of gifted/talented and highly able students. I have been

Cynthia Ratzlaff has taught at Bennett-Kew Elementary School in Inglewood for 13 years. She holds a BA degree in Archeology from Rutgers University in New Jersey.

The Boy and King of Jupiter

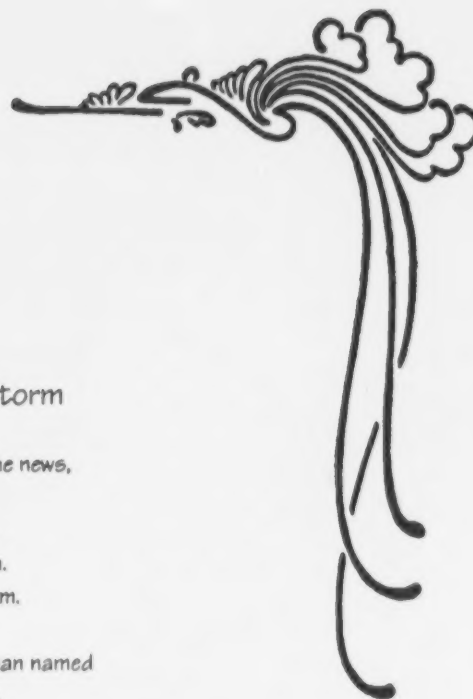
I am the boy and king of Jupiter
 The boy who will never die.
 The boy who lives on and on.
 The boy of Jupiter.
 The boy who is large in size.
 The boy who sees the earth and its
 beauty.
 The boy is me and will always be.
 Everybody loves my planet and its
 beauty.
 But the only thing is I have no air for
 people to breathe.
 I am a cold planet moving around in wide
 open space.
 The boy and king that is cold and red.
 This king has a big bright red spot and a
 giant ring.
 This boy doesn't even sing.
 This boy and king is not as hot as
 Mercury.
 This boy is not the right temperature as
 Earth.
 This boy will never ever sit down.
 This king and boy has no people on it.
 This king and boy would very much like to
 sing.
 This king and boy is so very big and
 courageous.
 I am the king and boy of Jupiter.
 This king can see the sun
 And see that we are one.

Rene Gomez

The Desert Storm

About five weeks ago on the news,
 I heard it.
 People ask me, I tell them.
 I've heard about the storm.
 But it's not a regular storm.
 It's a fighting storm.
 And it was started by a man named
 Saddam Hussein.
 He is a very crazy man
 Because he started a lot of shots.
 Some people say
 that sending our boys away
 is just like rolling a tire down a hill.
 You roll it and you don't know
 If it will ever come back to you.
 But, oh soldiers, please come back
 Because we can't stand to see you
 Dead in a stack.
 So, oh soldiers, do please come back
 Because we don't want to see you
 Dead in a stack
 With a bullet in your back.

Gregory Wells



I am the Girl

I am the girl of wisdom
 Yes I am, yes I am.
 I am the girls of the planets and space.
 I can float like a balloon.
 I can float,
 Yes I can.
 I am space,
 Yes I am.
 I am the girl of the soldiers
 And I can feel how the soldiers feel
 Oh, yes I can.
 I am the girl of cities and seasons.
 I travel through the sea.
 I am the girl of the lakes and swamps.
 Do you feel this way too?
 I think I can be the world.
 I wish I were the world.
 I am the girl of love.
 I am life.
 Aren't you?

Safiya Hinds

*These poems were all written by third graders
 under the direction of Cynthia Ratzlaff,
 teacher, at Bennett-Kew Elementary School
 in Inglewood USD. See article on page 23.*

Let's Hear It from the Teachers . . .

Concept Themes: An Umbrella for Learning

by Donna Denham

It has given them a hook to tie their work together.

It raises expectations for all students.

It helps students realize that what they are studying relates to the past, present, and future.

My students take more pride in their products. They have ownership.

When you're working with generalizations, you are forced to make connections among the disciplines.

If you had been in attendance at our monthly GATE networking sessions, the above are comments that you might have heard. Because of their personal and professional commitment in developing the Visalia Unified School District's GATE curriculum, teachers' excitement and enthusiasm has grown over time.

Approximately two years ago the GATE Parent Advisory Board suggested that a GATE curriculum be developed for our elementary schools. Visalia Unified is a school district of approximately 13,000 elementary students. The plan was to develop a curriculum that could be used in all schools and with all student populations. Visalia's 486 GATE students are either clustered in classrooms or enrolled in a GATE Alternative School.

The summer of 1989 found the GATE Resource Teacher and two GATE Cluster Teachers traveling to southern California to receive training in thematic teaching. As we learned more about the conceptual/universal theme idea, we thought about how it could be applied to our particular situation...serving some classrooms with one GATE student and other classrooms with as many as 15-18 GATE students. After trying out various ideas in a fifth and sixth-grade classroom, we gathered twenty-five 2nd-6th grade teachers in the summer of 1990 to develop a GATE curriculum to suit our needs.

After thoroughly examining the state frameworks, we decided to select themes and generalizations for each grade level. We evaluated themes that would enhance and comple-

ment the content at each grade level. Each of these selected themes serves as an "umbrella," under which many related concepts are clustered.

Second Grade .. Systems

Third Grade .. Change

Fourth Grade .. Influence

Fifth Grade .. Exploration

Sixth Grade .. Power

Teachers at each grade level selected 4-6 generalizations. The generalization is the "big idea" which leads to the learning of facts. It gives meaning to the facts or topics. Content is then developed spanning many disciplines.

During the week-long session, teachers met in grade-level groups to outline connections among district objectives, state frameworks, and their grade-level theme.

For example:

Theme: "Power"

Generalization: Power intoxicates; it inspires.

Learning Experience: (3 or 4 for each generalization - lasting 3-4 weeks)

Using appropriate student- and teacher-selected literature (including songs and poems), hypothesize how power has influenced characters. Present this in the form of an illustrated brochure, debate, role play, or student-selected, teacher-sanctioned product.

Through activities, assignments, and interdisciplinary research centers, students gathered information relevant to the generalization. During the course of the academic year, the teachers involved in this project met once a month to discuss and modify the summer plan. The networking among the participants became one of the unexpected strengths of the program. Future plans include the development and refinement of the existing curriculum and the inclusion of more teachers in the process.

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Let's Hear It from the Teachers . . .

Big Ideas for Little Children

by Sandra Brookshaw

Do bugs have bones?

How many stars are in the sky?

How does a beaver know how to build a dam?

What causes surf?

How do we taste things?

These are the types of questions preschool and primary teachers are asked daily. Try answering one of these questions in terms an early age child can understand. It's not an easy task. The young child has an insatiable curiosity, an innate desire to explore, a high energy level, a relatively short attention span, and the desire to be independent. They often say, "I can do it myself!" As educators, we need to establish an environment wherein students can discover answers to their many questions about the world around them.

In a thematic-based learning environment the early age child can research, discover, and draw conclusions about the theme from a variety of teacher-directed and self-selected topics. The young child must observe, manipulate, and construct real objects, or models of real objects, in order to draw conclusions about the generalizations presented by the teacher.

Let's assume that "Structures" has been established as a thematic base to integrate all areas of the curriculum. The classroom needs to be organized with a variety of learning centers that allow students to test basic generalizations about structures. Possible centers might include Technology, Numbers, Architecture, and Structures Found in Nature.

In a directed lesson the teacher defines terminology necessary to guide research focused on this theme. Following are examples:

Structure

1. Anything that is built, e.g. house, bridge
2. An arrangement of parts, or the way parts are arranged, e.g. plant cell, skeletal system

Natural structure

A structure that is repeatedly reproduced by natural forces

Imposed structure

A structure that is created by animal or man

Incongruous structure

1. A structure made up of inconsistent parts

2. A structure not consistent with what is correct, proper, or logical: unsuitable, inappropriate

Architect

1. Master builder
2. A person who designs buildings and supervises their construction

The students discover facts about structures by making observations or discoveries at the various centers. Through teacher-guided discussions, children can draw conclusions and make generalizations about structures based on facts they have discovered. Or conversely, the may teacher present the generalization and challenge the students to discover facts that support the generalization. Some generalizations the teacher may want students to discover about structures include:

- Structures are built to satisfy needs.
- Structures are made of parts.
- Structures are named and classified in different ways.
- All structures work in different ways.
- All compositions are structures (art, music, writing).
- Living structures reproduce themselves.

Once the environment has been established, the research terminology introduced, and a generalization suggested, the children are sent to work. Let's assume students are working to prove the generalization, "Structures are made of parts." At the archeology center students dig through sand and discover parts of a broken dish and then attempt to reconstruct the dish. Blocks, tangrams, pentominoes, and construction materials can be used to build a new structure. Complex machines can be examined to detect component parts. Appliances can be taken apart and pieces analyzed. These hands-on activities allow students to discover facts about structures first-hand and to draw conclusions. Students can then transfer their information to a new situation.

You have given them the tools to examine their world in more global terms and to test their assumptions. Thematic-based instruction gives students the opportunity to grasp "Big" ideas and make learning more relevant to their interests and their lives.

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Let's Hear It from the Teachers . . .

The Use of Systems to Solve Problems

by L. Ernestine Fields

The voices in the courtroom became quiet as members of the jury filed into the jury box. The judge asked the foreman of the jury if a decision had been reached. Replying that it had reached a verdict, the foreman stated that Goldilocks had been found guilty of breaking and entering the house of the three bears, along with the unlawful taking of food and the unlawful use of the bears' beds. The audience clapped in approval. Thus, some of the components of the legal system, identified on a classroom bulletin board, became "reality" to the children.

The curriculum for these six, seven, and eight year olds provided an opportunity for the children to analyze the elements that comprise these systems: transportation, communication, political, biological, legal, environmental, and human. Students who wanted to find out about even more systems were given the opportunity to learn about the sewer and postal systems within the city.

For each of the systems a center was created. Each center had a bulletin board identifying elements of the system. Included in each center were appropriate realia. Then, as the children finished various related tasks, from art to arithmetic to language arts to construction, their work was displayed in the same center, thus reinforcing the concepts presented by the teacher.

For example, the bulletin board for the legal system included a picture of Justice holding the scales of justice. This was in turn surrounded by vocabulary and pictures concerning the legal system: pictures of a courtroom, a judge, legal briefs, law books, and statute books. Later, the children constructed their own briefcases and these were, in turn, mounted on the same bulletin board.

By engaging in dramatic play, i.e., conducting a trial, the children were given an opportunity to experience group dynamics. This was vividly illustrated when a member of the jury for the *Three Little Pigs* became outraged when the audience groaned at the verdict concerning the guilt of the three pigs. This child's emotional response provided the entire

group with a "real life experience" in responding to mass hysteria. The ensuing arguments between the disgruntled child and certain members of the class called for "order in the classroom" and a discussion of how mature people handle disagreements. Certainly, the "elements" of group interaction were addressed within the context of learning about the legal system.

Thus, within each system studied, various parts were identified and activities were presented which enabled the students to experience a part of the system. In communications, an early hand-operated radio was provided for the children to operate; in transportation, a vintage Ford roadster was brought on campus and later, a class roadster was made and moved around the classroom; for the postal and sewer systems, a mural was created to show a city's postal and sewer systems at work.

The culmination of the study of systems was the creation by the class of a system whereby the class could provide the entire school population with a school bulletin. Through group discussions various goals were met: the purpose of the bulletin was decided, jobs were defined and assigned, and the methods of accomplishing the tasks were designed.

Entering the classroom during this experience was exciting. Some of the children were drawing pictures, others were writing copy. Soon, there was an assembly line of students stapling the various pages of the bulletin together. Lively music was playing in the background to help keep the pace of the assembly line steady, a concept learned through exposure to information about Henry Ford's innovative methods. Then, the bulletins were counted and distributed to the other classrooms. Each group responsibly cleaned up its work area and when ready, each child received a copy of the school bulletin. The class was ended. And, in their hands, the children had an example of what could be accomplished by creating a system that worked. Hopefully, the children's ability to solve problems was enhanced through their knowledge of, and experience with, systems.

L. Ernestine Fields is an attorney, who formerly served as a UCLA Training and Demonstration Teacher and a teacher at the USC-NLC Teacher Center.

Let's Hear It from the Teachers . . .

The Key to Connected Learning

By Violet A. Henney and Nora E. Woods

*Editor's note:
The authors assume
that the teacher has one
classroom not shared
by other teachers or
classes.*

Gifted children are not different, but they differ; therefore, the classroom environment and learning experiences must differ to ensure that the needs of these students are met (Kaplan 1990). In order to create this total learning environment, teachers would be wise begin with a universal theme.

People are drawn to themes everyday in some aspect of their lives, whether it be the theme song in a movie, the theme of a good book, or the theme for a party. It is no wonder, then, that a theme is an essential part of a differentiated curriculum for gifted and talented students. It is the "heart" of the curriculum, and without it all learning is fragmented. It enables us to lock together what we "have to teach" and what we "should be teaching."



The theme used in a differentiated curriculum is one which is broad based and can relate to all areas of study. It is not a unit-based theme, such as "fairy tales" or "dinosaurs." The theme must be a universal idea such as "influence," "order," "change," or "beginnings." The theme must be open-ended; for example, if it were "dinosaurs," students would learn only about dinosaurs. The focus of learning being narrow would restrict their learning in related areas. If the theme were "influ-

ences," however, the students could find out how dinosaurs have influenced our environment or how scientists of today have been influenced by the findings of prehistoric fossils. From the study of influences, students learn not only about dinosaurs, but how to connect influences to a multitude of other ideas.

It takes time to fully understand a theme, and we feel that one theme should be completely developed during a school year. Although some districts may consider using a theme for six weeks or a semester, we have found it more effective to study only one theme in each grade level per year. This allows students to internalize their understanding of the theme. One of the best ways to ensure understanding is through room environment.

Developing a room environment around a theme begins the first day of school. Captions and prompts help students express ideas in more scholarly ways. One successfully used prompt is "I assume _____ because _____," which encourages students to make assumptions based on observations. Another is "I challenge _____ because _____," teaching children the value of using factual information to support their statements in group discussions. Finally, students practice quoting factual information beyond their scope of personal knowledge by using the prompt "According to _____."

The theme must be displayed in a spectacular fashion so that it is immediately recognized when students arrive. An excellent way to introduce the theme is to brainstorm possible meanings of the announced theme. The thematic definition should be displayed in the classroom because it can be used as a reference for clarification of multiple meanings. Relating the theme to the students' lives at home, in the community, and at school is also useful for building understanding of the relevance of the theme. Emphasis should be placed on the study of the particular theme rather than on isolated subjects. Incorporate the theme into lessons whenever possible. The environment should be built throughout the year around the theme, rather than around seasons or subjects.

Since our curriculum is open ended, students add to their class products all year. By year's end the room environment should reflect the culmination of all learning experiences.

The products found in the learning environment come from lessons which prove or disprove generalizations. A generalization is a

nity to acquire knowledge (content) by developing skills or processes and communicating through products. Students are taught in an interdisciplinary manner incorporating learning experiences which provide more advanced, complex ideas. Every discipline offers research opportunities to students. Research in science includes observing, experimenting, and recording. In math, research involves observation and manipulation of numerical ideas. Research can also connect historical studies, causal relationships, and discipline studies. We conduct research by reading, listening, and writing.

Through the learning experience we incorporate critical, creative, and logical thinking skills, as well as problem-solving skills. Students are given opportunities to communicate verbally, tactilely, and through illustrations. Then they develop presentation skills so they can share their information.

The learning experience ($T/S+C+R/S+B/S+P$) helps build an understanding of a generalization and theme such as "Order can result in harmony or stimulate conflict." To build this learning experience, we must begin with a basic skill or essential element, as this is what must be taught. For example, in a lesson which extends from the social studies discipline, the formula could include the following:

T/S = Make causal relationships

C = Negative and positive influences which affect the order in cities

R/S = Recognize and use graphs to interpret population changes in cities

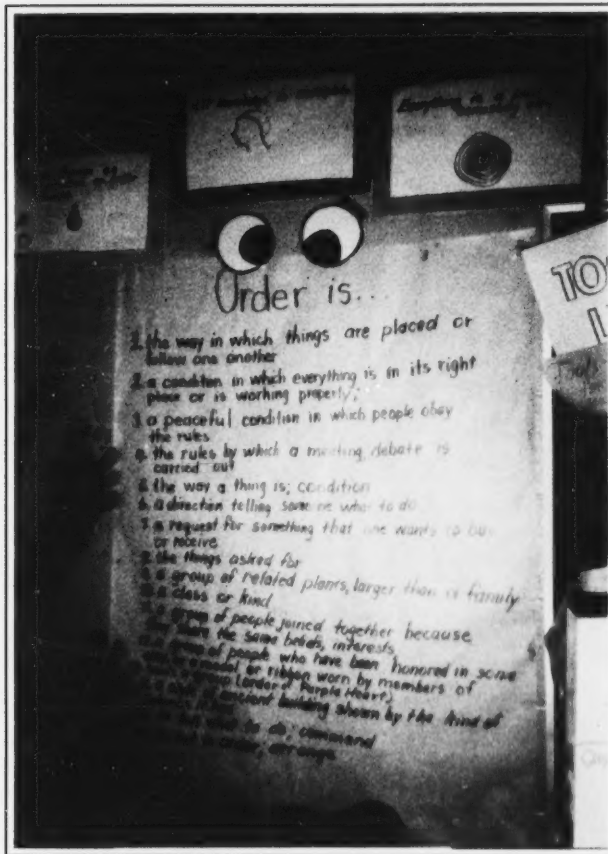
B/S = Identify multiple causes of events in communities

P = Panel discussion to identify ways adversity or harmony affects the order of cities.

For a more extended learning experience, the same formula can be applied to an "extended lesson" which might include:

- Identifying multiple causes of events during three different time periods.
- Gathering data and creating a time machine indicating the results of each war in relation to the economics and technology of the time.
- Writing newspapers of the time period to illustrate that order can end in harmony or stimulating conflict.

By developing a room environment around a universal theme and using learning experiences to understand generalizations, teachers will have provided a basis for a differentiated curriculum for gifted and talented learners.



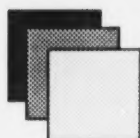
big idea with a broad meaning, inclusive of the theme. Generalizations are abstract, open-ended statements that foster an understanding of the theme. Throughout the year students research a chain of generalizations which link the theme, using both inductive and deductive reasoning.

Learning experiences are the keys that unlock the understanding of generalizations which are continuously linked by a theme:

Thinking Skill + Content + Research Skill + Basic Skill + Product ($T/S+C+R/S+B/S+P$)

Note that the formula does not equal the product; instead, the product is an integral part of the learning experience. In the learning experience the student is given the opportu-

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Thinking Blocks for Literature

by Stephen Marcus

Effects of Power	High/Low Human Nature	Individual vs. Society
Acceptance	THEME	Freedom vs. Responsibility
Growing Older	Tolerance	Tradition

Figure 1

Treats Others	Identity	Ten Years Later
Nurture	CHARACTER	Allies
Enemies	Power	Nature

Figure 2

The Problem

Your students have a problem. They are faced with the task of trying to figure out what to say about a work of literature they are studying in class. This entails figuring out what to think about it. If they are typical students, many of them have begun to develop thinking blocks at about the same time you have finished giving the assignment.

A Solution

A device for helping students deal with their thinking blocks is described below. Used by teachers and students around the country, it involves transforming a Rubik's Cube-type puzzle into a tool for thinking and writing about literature and demonstrates the transition from thinking block to Thinking Block. The method encourages a certain kind of intellectual dexterity, zest, and fluidity of form – in other words, a kind of mental break-dancing. The point is to give yourself a "whack on the side of the head" (or, if these metaphors are too percussive, a whispering kiss from the mists of imagination).

The Method

A Rubik's-type cube has six sides or perspectives. On each side there is a small center square (or "tile" in the Rubik's Cube world), surrounded by eight additional tiles. I picked one of those sides and defined it as the THEME perspective. I then selected eight common themes that are likely to occur in any novel or short story. Using adhesive paper, I labeled the center tile "THEME" and put a different theme on each surrounding tile

on the THEME side of the cube (see Figure 1).

I had previously noticed that most works of fiction deal with people, so I defined another side of the cube as the CHARACTER perspective and thought of eight questions you might ask of any character in a work of fiction. The CHARACTER side of the Thinking Block is shown in Figure 2.

The other four faces of the block were defined in terms of the author's METHOD in creating the work of fiction, the kind of WORLD that exists in the story, the role of CHANGE in the plot, and the relationship between the READER and the work of fiction being studied. These perspectives are shown in Figures 3 - 6.

The Practice

Here's how the Thinking Block works. Suppose you want to think and write about *The Red Badge of Courage*. First, you pick a perspective on which to focus – the theme of the novel, for example. You take hold of your Thinking Block and give its rows of tiles several twists – five to ten are usually sufficient. You then locate the center tile that contains the word THEME and note the random collection of tiles that now surrounds it, tiles that represent questions drawn from the other five perspectives. Your task now is to ask yourself each of those questions and to relate them to each other and to your book's theme.

In one case, the eight tiles that turned up around the THEME center tile dealt with Fate, Exposition, Stays Same, For

Deduction	Induction	Narration
Point of View	METHOD	Compare with Others
Exposition	Dramatization	Interior Monologue

Figure 3

Chance	Fate	Justice
Irony	WORLD	Choice
Happy	Unhappy	Law

Figure 4

Change, Tolerance, Ten Years Later, Choice, and Need to Know. Here is one set of questions that can be generated from this collection of tiles:

- In *The Red Badge of Courage*, to what extent is the world of the novel controlled by fate and to what extent by free choice?
- Who and what stays the same, and what's the relation between lack of change and the kind of world it is in the terms just considered?
- Who is personally trying to change, or to change others or situations?
- What's the relationship between these attempts and the kind of world it is?
- How is tolerance a factor in all this?
- Speculate on what all this may mean for one of the characters ten years after the story ends.
- To what extent do you find answers to these questions from what the author tells you (as opposed to shows you)?
- And, which of your answers to these questions can you weave into a statement of what *The Red Badge of Courage* is "about"?

If some of these questions don't seem to be working out, give the cube a few more twists. Depending on your personality, it may be comforting or disconcerting to know that there are some 42,000,000,000,000,000,000 (42 quintillion) arrangements of your cube – and you have only been examining one side of one of those arrangements.

Never again can your students bemoan, "But I don't have anything to write about!"

What the Thinking Block does is allow you to do industrial strength clustering, or power sentence combining. It may not be possible to interrelate all the questions that turn up around the selected central perspective. The

goal is to try to relate them – and in the course of doing so to try to develop new ideas and insights.

The Theory

The Thinking Block method is embedded in the following deeply superficial model of the thinking process. Start with the notion of a "thinking process" analogous to the composing process: that is, prethinking, thinking, and rethinking. (It's hardly necessary to point out that these represent recursive stages.)

Prethinking includes making the implicit explicit. On a given topic we can generate, record, and note the prejudices, facts, feelings, values, speculations, etc., that we already possess. We might also engage in some research to acquire more of such material. The Thinking stage consists of the application of heuristic procedures that provide us with a "whack on the side of the head." It is in the Thinking stage that we try new perspectives, new angles. It is here that we engage in creative thinking – making the familiar strange and the strange familiar. The Rethinking stage derives from attaching the prefix "re-" to almost any apposite word: reformulate, reconsider, reaffirm, review – rethink. It's in this stage that we can feel free to change our minds – if we think we should – and to articulate those changes.

As in the case of the composing process, some people confuse earlier stages with later ones. They attempt to do their rethinking before their prethinking. They mistake confirming their prejudices and assumptions with examining them. Others indulge in compulsive rethinking. This often leads to thinker's block and is especially troublesome when approaching the deadline for a paper or book manuscript.

Stays Same	People Indifferent	Forces Against
Forces For	CHANGE	Gains Ground
Loses Ground	People Against	People For

Figure 5

Surprised	Learned or Relearned	Need to Know
What I Know	READER	Left out
Still Applies	So what?	No Longer Applies

Figure 6

It's also the case that these stages don't begin to capture the complexities of the process under consideration. On the other hand, by suggesting a focus on the process of thinking, the stages encourage the development of teaching strategies appropriate to each.

This discussion only begins to explore the utility, and limitations, of this model for the thinking process. Suffice it to say that its main virtue is that it helps us think about thinking – and, if not more importantly at least more practically, such a framework helps us generate and structure our efforts to focus on process as well as product.

The Thinking Block is most useful during the Thinking stage of the thinking process. While a traditional Rubik's Cube-type puzzle has a drive toward order (i.e., getting all the tiles of one color back to the same side), the Thinking Block has a drive toward randomness. The point is to create an unexpected grouping of elements and to use our own abilities for constructing meaning to bring order out of "chaos." The Thinking Block also illustrates in a concrete way that, even though we are considering the elements of one perspective, there are all those other elements just waiting to be brought into the picture.

Thinking Blocks Across the Curriculum

The particular questions (and tile labels) provided above are obviously arbitrary. Different central perspectives could have been chosen, and other questions could be substituted. The important feature is the mechanism. Realizing this, it is clear that Thinking Blocks can be created by teachers and students for other English and language arts areas, other grade levels, and other disciplines.

As usual, however, the implementation of a bright idea is never as easy as expected. Experience in training workshops designed to

develop other kinds of Thinking Blocks suggests that participants can use guidance. Center-tile topics must be at the right level of abstraction. Surrounding-tile questions should be sufficiently open-ended to encourage the kind of cross-pollination that is at the heart of the whole approach.

The very enterprise of developing a Thinking Block is, however, an enriching and rewarding experience. This was certainly the case for two social studies teachers who decided to develop their own Thinking Block for History. They first had to consider common dimensions of historical events, deciding tentatively on the following: PEOPLE, IDEAS, HABITAT, PLACE, and ECONOMICS. Their continuing efforts to refine their topics and accompanying questions have provided them, their students, and their colleagues with quite a valuable "new look" at how their discipline is conceptualized and organized. The stages of developing a Thinking Block have themselves provided occasions for thinking and writing about history.

Brief Conclusions

Even though the Thinking Block "breaks down" ideas about literature into bits and pieces, the Block itself is an integrative and synthesizing device. It's a concrete metaphor and reminder of the richness and complexity of literature. The work under consideration is clearly about both what is on the Block, and even more what is absent from it.

The Thinking Block, in fact, allows and encourages students to constantly "redraw" their mental map of a work of literature. It evokes "alternative itineraries" through the landscape of the text. And it does this

with a cultural icon that connotes both problem solving and "play." The Thinking Block is also an antidote for those people (like the author) who could never solve a Rubik's Cube in the first place. "Solving" the Thinking Block is the last thing you want to do.

The Thinking Block for Literature is on one level merely a three-dimensional version of "take one from column A, one from column B," etc. In practice, however, it has proven at a variety of grade levels, to be an engaging and intriguing challenge for teachers and students who like to play with ideas and who enjoy having a concrete and colorful way to represent them.

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A Note for Computer Enthusiasts

The Thinking Block is a method for organizing, storing, and retrieving information. As

such, it is a "data base" (as is any dictionary or novel), and was, in fact, developed in the course of creating more traditional data base files for thinking and writing about literature. It should be clear from the discussion above that the Thinking Block is thus both a data base and thought processor. It has 42 trillion megabytes of RAM and a high-resolution, interactive digital-kinetic interface. Its neural-wetware operating system is compatible with all known brands of commercial hardware. There is already a large installed base of uninitialized Thinking Block hardware in the United States, and thus the Thinking Block system is readily available as a very low-cost peripheral device for English classes. It is advised, however, that third-party developers exercise care in keeping the sticky paper from slipping into the drive system.

Barber:

Continued from page 18

the honey bee by making paper bees, a bee hive, flowers and pollen, and bee predators. These activities are rich with opportunities for students to observe, classify, and notice and articulate patterns. Students focus on the structure of a honeybee and the hive. They explore the changes in the life cycle of a honeybee. They study the interactions between bees and flowers as well as between bees and their predators. A teacher can ask students to compare the ways in which butterflies and bees are similar and the ways in which they are different, again illustrating the important theme of diversity & unity.

June

Bubble-ology is a great way to celebrate the end of the year. Your students can't help but to stay on task as they participate in several of the activities in this unit. In "Bubble Technology," students test and then classify varied materials according to which work to make bubbles and which don't. In their own words they describe the ideal structure for a bubble blower that makes enormous bubbles. In other activities, students observe the color changes on a bubble and look for patterns to predict when a bubble will pop.

As should be evident from the above, even though the educational reasoning for the thematic approach and its components may seem advanced or complex, the concrete experience that students gain by encountering a theme again and again, from different disciplines, and in different contexts, helps them build a

deeper understanding of several major ideas in science.

After participating in a program like the one described above, a primary age student may not learn a specific category, such as diversity & unity. But she can come away knowing that you can look at the world and see the ways in which things are similar or part of a whole, the ways in which they are different or separate. Even if a young student is focused on just part of a big idea, such as the interactions aspect of systems and interactions, he will come away prepared to understand more about systems and interactions in the future.

By using underlying thematic constructs to bring together a lively series of activities that give your students a sense of fun and excitement, while introducing them to skills, concepts, and themes, you help pave the way for learning about science and mathematics in grades 4, 14, and 44. You no doubt have many other favorite activities for early graders that could be woven together in a similar way. Over the next several years, a number of new GEMS guides, in both mathematics and the physical sciences, are planned for these grade levels, which should allow for even greater flexibility in meeting the needs of kindergarten and early elementary students.

Above all, a curriculum that embodies a thematic approach enables us to get past "activities for activity sake." It allows for a more thoughtfully organized, and in the long-run a more beneficial, construction of ideas for students.

Younger Scholars: An Outstanding Opportunity for Summer Research

by Leon Bramson

reprinted with permission from History News, November/December, 1989. Award amounts have been updated to current figures.

When I began my project, I expected to become an expert on the Indianapolis treason trials of 1864 and on the constitutional implications of the Supreme Court's decision on the Milligan case. I did accomplish that end, but I also was able to see from a first-hand view the interrelation between a state and national history and between state and national legal issues. As a high school student, I have always seen history recorded in one textbook. By looking at what many historians, legal writers, and political scientists had to say about my topic. I saw how a single set of facts and events could be interpreted in different ways and with different kinds of emphasis.

This is what Lewis J. Wertheim of North Bloomington High School in Bloomington, Indiana, had to say at the end of a summer of research. Lewis, who was a sophomore, had won a Younger Scholars award for work during the summer of 1987. The result of his work has been published by the *Indiana Magazine of History* in its September 1989 issue. The article, "The Indianapolis Treason Trials, the Elections of 1864, and the Power of the Partisan Press," is but one of the many projects conducted by high school students all around the country since 1984. Both high school and college Younger Scholars have written on a wide variety of topics in history, literature, philosophy, and other humanities disciplines since the program was started.

High School Younger Scholars awards are made to secondary school students and are for \$2000, which includes \$400 for the faculty project adviser who works with each Younger Scholar. Award recipients are expected to work full-time for nine weeks during the summer, doing research and writing a paper under the close supervision of a humanities teacher/scholar. Although no academic credit may be sought for these projects, students frequently use them as springboards for further work. (College Younger Scholars, which is a separate competition, receive grants of \$2400, of which

\$400 is for the project adviser.) Projects must be in the form of a research paper and firmly grounded in one or more of the humanities disciplines.

In the act that established the National Endowment for the Humanities, the term *humanities* includes, but is not limited to, the student of the following disciplines: history; philosophy; languages; linguistics; literature; archeology; jurisprudence; the history, theory, and criticism of the arts; ethics, comparative religion; and those aspects of the social sciences that employ historical or philosophical approaches.

While not all Younger Scholars publish the results of their research as Lewis Wertheim did, many of them do manage to disseminate the results of their work through lectures and informal talks as well as in printed form. The main thing is, however, that winners of these

grants have an unprecedented opportunity to devote themselves to research and writing on a full-time

The deadline for applications is November 1 for the following summer.

basis. For most of them, it is the first time that they will have had an opportunity to find out what scholarship is really like. It is remarkable how many Younger Scholars winners report that the experience has changed their views of their own future.

One junior classics major at Brown University wrote in his final report in the fall of 1987:

This, perhaps, is the most important result of my summer research: I have seen the way a scholar works, and I am convinced that I am ready to devote myself to such a life.

While not all Younger Scholars emerge from the summer's experience with such strong feelings, many do find greater self-discipline and love of research as a result. A junior at the Central University of Iowa in Pella, who had worked in a factory during the previous summers, received an award for research on the "Influences of Shakespeare on Whitman's *Leaves of Grass*." Reflecting on his summer experience, he wrote:

Leon Bramson is a program officer with the Division of Fellowships and Seminars of the National Endowment for the Humanities in Washington DC.

I was able to learn a great deal about both Whitman and Shakespeare that I had never had the chance to learn in all my classes. This of course, is an expected outcome of any intense study of an author or authors, and I am not surprised by this fact. I am, however, surprised by the fact that I learned such a great deal about discipline! Being, in essence, my own foreman, I was able to disobey orders much more readily than if I had been working in the factory again this summer. This, indeed, has its obvious rewards, but the dangers of such a situation are equally obvious. I quickly learned the value of self-discipline, as I worked diligently even at times when I did not feel like it. Such discipline was certainly necessary as the weeks rolled by, and it is something that I will long appreciate. This sort of discipline as well as my greater appreciation and understanding of both authors' texts would not have been developed had I not received this grant.

Applicants for Younger Scholars awards come from high schools and colleges all over the United States. In the competition for grants during the summer of 1989, there were 724 applicants and 157 awards. Of the 327 high school applicants 66 received awards. Historically, about 20% of the applicants have received awards in this program. Applications in the high school program are reviewed by panels of high school teachers who come from a wide range of institutions.

The deadline for applications is November 1 for the following summer. Complete information regarding the program as well as hints and advice for applicants may be obtained from the Younger Scholars Guidelines, National Endowment for the Humanities, 1100 Pennsylvania Avenue NW, Washington, DC 20506; 202/786-0463.

ON THE LIGHT SIDE

By Jean Watts



PHILOSOPHICALLY, ABOUT ALL I GET FROM DAD IS... "I DID.. THEREFORE, I KNOW"

California Younger Scholars

Three young Southern California women are among the 49 award winners in the 1991 Younger Scholars program of the National Endowment for the Humanities.

Amy R. Haley of Westridge School in Pasadena, Agnes Y. Huang of Irvine High School, and Elizabeth J. Siebel of The Thacher School in Ojai received grants to pursue individual research projects of their own design during nine weeks of full-time work in the summer.

Their proposals were (respectively): "At Home, Quiet, and Confined: Relationships Among Women in the Novels of Jane Austen"; "The Search for an Asian-American Identity Through the Works of Maxine Hong Kingston"; and "Public Expectations and Private Realities: A Study of Black and White Women in the Antebellum South."

Collaboration is the Key to Successful Evaluation At San Diego City Schools

by Susan Millett

The literature on evaluation of educational programs suggests that program evaluation appears to be most effective when (1) a collaborative relationship exists between program staff and the evaluation team, and (2) the evaluative findings become the common knowledge of program providers at all levels. During the 1989-90 school year, San Diego City Schools approached the annual evaluation of its Gifted and Talented Education (GATE) program with that important tenet in mind. The evaluative focus was one of providing technical assistance to the program via a collaborative model. The resulting product has the potential for empowering GATE staff to modify their program in a way which ultimately improves their services to students.

The process of evaluating the gifted program in San Diego began with an evaluation design which reflected input from both GATE and evaluation personnel. This collaboration generated research questions which addressed state-mandated criteria, district goals and objectives, and issues of special interest to the local program and its participants. For example, district concern about the dropout rate was reflected in an evaluation question intended to assess the program's efforts to assist underachieving students in the gifted population.

GATE staff additionally assisted in drafting comprehensive survey instruments for student, teacher, and parent groups. The surveys included questions about opportunities for student input, opportunities for teacher participation in program planning, methods used to communicate with parents, and parent participation in GATE-sponsored activities. The surveys also included questions to elicit the attitudes and opinions of the gifted community regarding the impact of specific program aspects on students. Collective responses from student, teacher, and parent groups were considered essential in promoting progressive modification within the program.

Data collection also included key academic indicators for program participants, specifi-

cally norm-referenced test scores and grade point averages. These important indices served not only to measure the degree to which students had achieved academic goals established by the program, but they also became valuable tools in determining whether or not the program was making a difference in the instruction of the gifted student. Not surprisingly, when the test scores and grade point averages of gifted students who were enrolled in the program were compared with those of certified gifted students who were not program participants, the data demonstrated that students in the GATE program significantly outperformed their non-participating cohorts at all grade levels.

To facilitate program planning, the GATE program received preliminary, summarized findings throughout the year, as data became available following analysis by evaluation staff. The on-going communication between program and evaluation personnel generated improved revisions in the review process and helped to ensure a more comprehensive and functional product to assist program planners.

Recognizing that genuine progress requires a pluralistic effort, the GATE staff in San Diego will be distributing the final report to all 700 teachers of GATE classes, each principal and head counselor in participating schools, and every parent with a student enrolled in the program. This distribution of key information serves to ensure awareness of identified strengths and weaknesses in the program and promotes cooperation and rapport among the larger gifted community by providing prompt feedback to interested survey respondents.

The Gifted and Talented Education program and evaluation services in San Diego City Schools are committed to the collaborative model to guarantee the technical support required of a program as the needs of a diverse student population evolve. Given this cooperative approach, GATE staff is optimally serving the nearly 10,000 gifted and talented students enrolled in the program.

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(619) 293-8517.*

Movie Review: *Little Man Tate*

by Diane Mountford

Coming this fall to a theatre near you will be "Little Man Tate," a film which offers the film-going public a rare look into the problems and challenges of giftedness. The top-notch cast, the quality of the film, and the fact that it is Jodie Foster's film directing debut, promise to make it widely-viewed. Therefore, those in the field of gifted education will want to look at what the movie says, and how giftedness is portrayed.

The film deals with the trials and tribulations of Fred Tate, a seven-year-old prodigy stuck in a stifling second-grade classroom where he receives no academic stimulation, and where he has no friends. At recess he draws Leonardos on the pavement with chalk, while the "normal" little boys play ball. In class, when it is his turn to accompany the teacher in her favorite moralistic ditty, Fred plays the song backwards. Outside school he reads avidly, plays piano at competition level, solves complex mathematical equations, dreams in Van Gogh paintings, and has an ulcer because he worries so much about everything from his mother's employment to the depletion of the ozone layer. He is, in short, a very gifted, very lonely child, and is beautifully portrayed by first-time actor Adam Hann-Byrd.

Fred is a very quiet, withdrawn child: a reactor rather than an actor. He is acted upon by the other characters in the film, who are very strong and represent various facets of, and possible solutions to, Fred's problems. Jodie Foster plays Dede, Fred's single mother, the emotional, social side of Fred. She wants more than anything for her son to be a happy, normal little boy. She thinks he spends too much time reading, and refuses to admit that there is anything wrong with her child's life until she throws him his seventh birthday party and no one shows up. Her relatively uneducated background

has not prepared her to deal with Fred. She is unable to interact intellectually with this boy who becomes more of a mystery every day, but she loves him fiercely and provides the safe harbor he requires.

Into the lives of Fred and Dede comes Jane (Dianne Wiest), a child psychologist who runs a private school for gifted children. She takes Fred under her wing and tries to provide for him the intellectual stimulation that has been lacking in his schooling and home life. Jane, however, is unable to deal with Fred on an emotional level. Thus, Fred's battle to balance the emotional and intellectual parts of his personality is aptly illustrated and amplified in the battle between the two strong women in his life.

Two other characters provide other influences and options. Jane's former protégé (and Fred's idol for a time) known as the Math Magician, is the egocentric specialist. He is well aware (as he has been told numerous times) that he is a great deal smarter than most other people, and he does his best to ensure that they don't forget it. The other strong male influence on Fred is Eddie (in a charming performance by Harry Connick, Jr.), a laid-back, unfocused college student. He shows Fred that life is not always terribly serious, that physics can be applied to playing pool, and that a piano can play honky-tonk.

My main concern about how the film portrays gifted education stems from the amount of money in evidence at the gifted school. Jane's school is a fortress of eurostyle elegance which admirably reflects her character, but

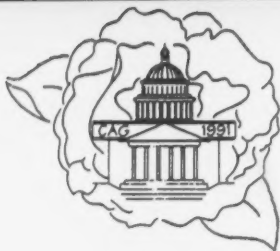


which makes it look as if gifted education has all of the money. There is no mention that there might be a program available through Fred's public school. The only alternatives given in the film are a poor (although not too overcrowded) public school and the sleek marble halls of a private gifted school.

Some may feel a pang that the only educator in evidence is such a cold fish, but her character is specific enough that she can be viewed as an individual, rather than an archetype.

Competitions for the gifted are also presented in a less than favorable light. The Odyssey of the Mind program is named and part of a competition is shown, but the segue to a stilted math contest gives a false impression.

On the whole, the film offers a complex, very sympathetic view of a child outcast because of his extraordinary giftedness. Although the end of the film finds Fred happily entrenched in gifted school, with peers and friends, Foster never announces a winner in the emotional-intellectual battle between Dede and Jane. The audience is left with the understanding that neither motherly love nor intellectual stimulation alone will be enough to nourish this incredible child. Fred has found a niche where he will not be labeled a freak, and along the way has learned that his being smart doesn't mean he no longer has the emotional needs of a child.



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Telephone inquiries may be directed to
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 - The preconference *Celebrating Diversity* will address the changing demographics of California, e. g., serving linguistically or culturally diverse students, using situational identification methods, finding and serving the underachieving and learning disabled gifted, etc.
 - A mini-conference for parents has been scheduled for Saturday morning.
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THE WORLD OF WORK

Career Development and the Gifted Student

by Rebecca Dedmond

"Nothing is so simple for me that I can do a perfect job without effort, but nothing is so hard that I cannot do it. This is why I find it so difficult to decide my place in the future."
(Hoyt & Hebel, 1974)

Position

Gifted students need careful, involved help to develop the process of career decision-making. The actual choice of a particular career is not the important end. Rather, developing strategies and means of decision-making are the important end. Career development is a process of helping students develop an awareness and understanding of their own aptitudes, interests, abilities, and motivations as they relate to occupations.

Career Development Needs of the Gifted

Frank Parsons wrote in the early 1900's of the importance of three areas: knowledge of self, knowledge of the world of work, and true reasoning (the process of synthesis of information and decision making). While career development needs are very similar for all populations, there are certain characteristics of the gifted that need careful attention in order to be most effective.

Multipotentiality is evidenced as early as elementary school, as diverse abilities, achievements, and interests emerge. Students must be able to see their career plans as having specific direction. Children must develop self-assess-

The Career Orientation and Planning Profile

by James V. Carr

The *Career Orientation and Planning Profile* (COPP) originated in Japan and is now being introduced into the United States by the National Consortium of State Career Guidance Supervisors.

The COPP was first developed by Dr. Shigekazu Fukuyama and has been used in Japan since 1958 under the title, *The F-Test For Appraising The Ability To Choose Methodically Among Occupations*. Its major use originally was as an evaluation tool to measure the effectiveness of career guidance activities in Japanese junior high schools during the 1960's.

In 1973, the F-Test was introduced to ten junior high schools in Hawaii to serve as a tool in evaluating the effects of career education among students. Since then it has been used continually in Hawaii and has been introduced in sixteen more countries outside Japan, including China, England, France, Germany, Russia, and Switzerland. In some of the European countries, the F-Test is seen as a valuable tool to assist students in occupational orientation and selection. It is important in helping to determine the types and levels of secondary and post-secondary education and training for students.

According to Dr. Fukuyama, the foundation of the COPP rests upon the following four tenets of vocational guidance. These four tenets hold a significant message for those committed to the education and guidance of gifted students.



Continued on page 25

Continued on page 29

PRESIDENT'S COLUMN



Sandra Kaplan

As educators and parents of the gifted know, education for these students has been dependent on social, philosophical, and fiscal contexts. Gifted education has faced the best of times and the worst of times, as they say. The ambivalence of political leaders, community members, and educators about gifted students and their educational needs has resulted in a mercurial relationship between the recognized abilities of these learners and the curriculum and services provided to them.

However, one constant remains: education for gifted students is a right rather than a privilege. It is the right of all students to expect acknowledgement of their needs, abilities, and interests and an education commensurate with these needs, interests, and abilities. It is a right of all learners to be challenged. Since education for the gifted is a right, our discussions related to these students should never be whether they should have a program or differentiated curriculum, but rather what forms such programs and curricula should take.

In answering this question, one must consider the prevailing concerns and trends in general education. Following are some educational concerns which bear consideration when planning gifted programs and enabling gifted students:

- inclusiveness of participants rather than exclusiveness
- choice of curricular options rather than a singular discrete program or curriculum
- academic depth in studying specific areas rather than superficial glossing of many topics
- curricular outcomes that contribute to society rather than just satisfying personal interests.

Students who are gifted in the vocational arts comprise an underrepresented and underserved population. Efforts have been made to recognize the gifted in this area, but in most districts they are not considered in planning GATE programs. Currently there is significant work being carried out to identify students gifted in vocational arts areas. This new work needs to be applied to district programs. All of the tenets of differentiated curriculum apply to vocational arts as much as they do to the more traditional academic areas.

While we respect the vocational arts talents of these students in and of themselves, we may also be able to utilize these strengths to encourage the development of academic gifts which these students may also possess. There needs to be interaction between students adept in vocational areas and those adept in academic areas. Districts need to be aware of the richness and variety of the gifts which their students possess and strive to nurture them all.

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18th Annual Conference
Navigating Changes:
GATE's Course in Restructuring
UCI Student Center, Irvine CA
For information contact:
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12702 Adrian Circle
Garden Grove CA 92640

February 21-23, 1992
30th Annual CAG Conference
Cast a Wide Net
Long Beach, CA
See article on page 37.

Role of the School Counselor

from ACSA's Implementation Guide for School Counselor's Role in Career Guidance

The professional school counselor is responsible for:

- maximizing student opportunities for career awareness/exploration in the community;
- working collaboratively with participating community-based organizations to insure accuracy of occupational information;
- helping community-based organizations develop and present bias-free career information;
- maximizing community involvement in career awareness and career education activities;
- helping parents increase their effectiveness and their participation in their child's career development;
- encouraging and consulting with teachers to help students K-12 understand relationships between school and work;
- insuring that students learn that career is the totality of one's life work, both paid and unpaid;
- insuring that each student becomes competent in the career decision-making process; and
- evaluating the total career guidance effort.

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Three Voices on Parenting the Gifted

by Terrie Gray

For this month's article, I interviewed three friends to determine how they and their children dealt with the issue of giftedness. Each of the three friends has two children who are in college or just finishing high school. All three of these women are dynamic, talented individuals. Sara has worked as a school librarian, founded a community library, and is currently pursuing a master's degree in French. Alice, who stayed home for her children's first decade before returning to teaching, writes a regular column in a national education magazine. Lois teaches music at a community college, and is an accomplished pianist. (Names are changed for confidentiality.)

SARA never felt her daughters' giftedness was a problem. Being gifted certainly helped them succeed, but she didn't see them as being "different." As a matter of fact, both girls were involved in school sports, music, and cheerleading, as well as being on the honor roll, delivering speeches, and winning scholarships. Sara and her husband try to be supportive of their daughters, and try to foster commitment. Sara believes that "All kids have some special needs. I'd rather respond to each child separately than as a category."

ALICE also reflects a "matter-of-fact" attitude about the issue. Of her family she states, "We value the child for the child's self." She feels that sometimes the parent's ego gets in the way, and that parents need to understand that the child exists "not as a reflection on the worth of the parent," but as an individual with a unique set of attributes. Recognition and acceptance are important, but the attribute of giftedness is only one part of what makes up the whole child.

Alice encourages every parent to stand back and reflect on what values

are most important in the family. One of her family's mottos, "Good enough to get by is not good enough," reflects their desire to always do their best. Alice also emphasizes that what is most important is neither how the parent nor the teacher judges a child, but how the child evaluates his or her own actions.

LOIS and her husband experienced near-tragedy with their older daughter. When she was four, testing revealed she was extremely gifted verbally. Lois was justifiably proud of her daughter, and always expected the best from her. She says that when her daughter brought something home that wasn't "completely perfect" a little something "died inside." These expectations were never spoken aloud, yet were evidently understood. The daughter, now a sophomore at UC Santa Cruz, has told her parents that "Everything I've done, I've done to please you."

This girl demonstrated an extraordinary drive to be self-sufficient from her earliest years. When she was three, her frustration at being unable to tie her shoes erupted in tantrums, but she wouldn't allow anyone to help her. After a trip to Vienna with an orchestra in the eighth grade, she decided she wanted to go to Germany for her senior year of high school. She began her preparations by studying German in school. Then, as a junior, she decided to try to graduate before her trip and doubled up on classes, passing some courses by test. In addition, she continued her music performances.

This load, coupled with the pressure to get good grades to qualify for college entrance, grew unbearable. In the spring, after a trouble with a disgruntled boyfriend, and after the accidental deaths of two close friends, Lois' daughter attempted suicide. Fortu-

nately, this girl recovered, was able to go to Germany for her senior year, is doing well at the University, and dedicated many hours of service during the cleanup of the Loma Prieta earthquake.

Lois' second daughter is gifted non-verbally. She was never tested, however, because she stayed in a private school setting where there was no specific GATE program. While the older daughter excelled in playing the violin, this one danced. Like her sister, she has served as the student representative to the school board. But, unlike her sister, she has never suffered from pressure to excel. It wasn't expected that she would always place in "the top group," and she hasn't. But she has been happy. And, she has been able to travel during her junior year of high school as an exchange student to Australia.

The question of expectations is a delicate one. We want our children to do their best, but we don't want them to feel driven. We want them to know we will offer support, but we don't want to be pushy. Certainly some children drive themselves relentlessly. Lois advises their parents to let them know that "it's safe to get help," and that it is acceptable not to be "the best" at all times.

I appreciate the candor of these interviews. The unspoken message I heard from all of them was this: We must view our children as children first, as gifted second, and above all, as individuals. There will always be challenges in raising children. But what we've got to do as parents is love them, listen to them, respond to their needs, be there for them, encourage them to do their best, and help them to accept themselves as wonderful people, each with special gifts. I hope these stories have given you a boost. Many thanks to my friends, Sara, Alice, and Lois.

What is SAGE

Student Advocates for Gifted Education is the newest arm of CAG, having met for the first time at last year's conference in Sacramento. The Leadership Team for SAGE consists of two student representatives from each of the participating regions and one adult advisor. There are also two coordinators who oversee the program and serve on the CAG Board of Directors.

SAGE has evolved its structure to the point of having drafts of a charter and of a publicity brochure. We would like to share the contents of this brochure with you, the general membership of CAG.

SAGE Activities

Meeting with the CAG Board
Assisting at CAG Youth Leadership Camps
Forming local student groups
Leading workshops at the state and national level
Serving as advocates for education with legislative representatives.
Compiling the *HORIZONS* newsletter
Supporting extra-curricular learning challenges



Some SAGE Leadership Team members take a break during recent meeting in Monterey. From left: Casey Dunn, Twain Harte; Jennifer Tucker, Monte Rio; Dallas Glenn, San Francisco; Andrea DeYoung, San Jose; Ryan Harris, Ukiah; and Jordan Beasley, Sacramento.

SAGE Mission Statement

- To provide student representation for gifted education;
- To participate in the political arena;
- To promote awareness at local, regional, and state levels;
- To recognize and address problems within gifted education;
- To establish four-way communication among administrators, faculty members, students, and parents; and to make information and resources readily available to everyone involved with gifted education;
- To serve as a resource through informal discussions and presentations to staff and school boards in districts where there is willingness to improve education for gifted students.

In order to accomplish these goals, the Leadership Team of SAGE will meet at least twice annually to collect, discuss, and distribute SAGE information.

SAGE Vision

We believe an appropriate GATE program includes:

- racial diversity
- counseling support
- a variety of program options
- specially trained teachers
- student input on content as well as course and teacher evaluation
- many difficulty levels to choose from
- large, flexible blocks of time within which to work on projects
- self and peer recommendation for the program
- early opportunities to learn foreign languages
- self-paced math instruction
- more hands-on materials in science, history, and the fine arts
- opportunity to learn research skills
- no busy work
- sufficient program funding

For more information about SAGE, contact Sharon Russell at 818/889-9735 or Bruce DeVries at 707/462-2182.

The Career Kit: An Introduction to the World of Work

by Jody Hess

Mentorships are a great idea for some gifted students, but how does one find mentors? How can a teacher match a whole group with willing and interested adults? And, even more importantly, how can a teacher encourage the student (with parental assistance) to initiate a professional acquaintance with an adult that may eventually lead to a mentor/protegé relationship?

The Career Kit

Fifth and sixth grade students in my classrooms (both regular and gifted education) have taken the responsibility for learning about careers by means of a Career Kit. In a nutshell, the students identify a career of interest, locate an adult who is working in that field, and conduct an interview. This short explanation only begins to describe what has evolved over a dozen years into a comprehensive research unit.

Career education generally is accepted as a fruitful area of study for gifted students. Some students at middle school age may have strong motivation to pursue a single or multiple career choices, while others change their minds weekly. Still others may not have given the subject any thought at all. For any of these students, the Career Kit unit can be appropriate.

The introduction to the unit can be as simple as brainstorming all the careers the class can name. To add to the list, students can survey adult friends, look in the newspaper for references to people's job titles and descriptions, or consider categories of jobs, such as "people who work in a hospital." Groups can work to find careers for each letter of the alphabet. A reward can be given for finding the name and description of a career which no one else discovers. The object is to generate lists of careers with potential for further investigation.

The Interview

Although my students interview each other and survey parents and friends for a variety of purposes, most have not had the experience of a one-to-one interview with an unrelated adult. Therefore, practice is needed. Interviewing

someone about a career must be a planned process. Unless the students have prepared questions and conducted practice interviews, few will feel confident. So, the first career to be explored is that of teacher.

I am the willing guinea pig who will simulate the adult whom they will soon interview. As they determine what would be of interest to ask about teaching as a profession (and, of course, many assume they know all about it already), I write the questions on the board and answer them orally. Many of them are the nitty-gritty questions about job duties, hours, training, and so forth. Through discussion, the students learn how to ask how much a person earns without giving offense. For example, "What is the starting rate of pay for your job?" or, "How much is the most a person can make in this career?"

Brainstorming the Questions

I do not start with a list of questions I have decided on, nor do I give them the list a previous class has devised. The process of deciding on their own list is too important. Moreover, you will be amazed at the sophisticated, sensitive, and insightful questions your charges will pose. I will sometimes suggest questions if a particular area hasn't been covered.

Various groups of students have considered the following to be significant:

- What kinds of stress does your job have associated with it?
- Who influenced you to choose your career?
- What would you change about your job if you could?
- Tell an anecdote about your job that illustrates a funny, scary, exciting, or otherwise unusual or interesting thing that happened.
- What advice would you give to someone interested in your career?
- Would you be glad if your son or daughter followed in your footsteps?
- And finally, what question hasn't been asked that you would like to answer?

From the brainstormed ideas, a list of questions for the interview is prepared. The groups may decide on a few questions everyone is to

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ask, and others may be optional, depending on how the individual interview goes.

After interview questions are chosen, students roleplay with each other to practice phoning for an appointment. It may be helpful to invite a community member for the class to practice interviewing.

Finding the Role Models

A discussion of where to find willing adults to interview comes next. Some want to interview the President, a rock star, or a professional athlete about his or her career. At this point, the reality of risk-taking quickly differentiates one student from another. For a student with a low tolerance for risk-taking, a parent or neighbor can be interviewed. (It must be someone who likes his or her job!) Others are willing to interview the parent of another student in the class or school. Some have contacted business or professional people they found in the yellow pages. But for those few with the confidence and persistence to try, there may be a pot of gold at the end of their rainbows.

Students of mine have been invited to a professional artist's studio, interviewed a judge in her chambers, received galleys and an autographed copy of an author/illustrator's book, discussed theoretical physics with a Caltech professor, and interviewed Los Angeles TV news anchor Lonnie Lardner at the studio. But one boy with an unquenchable desire to talk to a professional athlete would not be discouraged. He wrote to, and talked with, the Laker's public relations office and the player's agent. I had to verify that the interview was really for a school project. And one spring day in 1985 a student of mine interviewed Magic Johnson! (I have the autographed photo of John and Magic to prove it.)

Locating a willing adult with a particular career may take time, so it is wise to have some backup career choices and parents willing to be interviewed. Intermediate deadlines for setting up and conducting the interviews help to keep students on task. Students give me the names, numbers, and addresses of the adult interviewees. They call back to confirm the appointment a day in advance of the interview, and following the interview they must write a thank-you note (even if they interviewed big sister, the accountant.)

Documenting the Interview

I quickly discovered that it is imperative for students to tape the interviews, take photos, and ask for "souvenirs" to keep or borrow. In this way, the whole class can share in the discoveries back at school. You may want each student to choose a different career, but that is not necessary. Most interviews were conducted outside school hours, with parents transporting the students and waiting during the twenty-to thirty-minute interviews.

If you and the group wish, you can compile some information from the interviews into a jointly-written research paper. For instance, one class discovered that the most frequently given reason for liking a job was the money, but second was satisfaction and a sense of accomplishment. Percentages of responses can be graphed and compared.

There have been surprisingly few glitches, and those are far outweighed by the benefits. I have students use a form to evaluate their preparation, interviews, and presentations. I always ask each student to write or record a bit of advice to the next group which will do the project. This advice best summarizes what my students have learned from their professional acquaintance with adults in the working world.

"Don't put off setting up the interview, or you'll be squished for time."

"Grownups like talking about their jobs. It isn't hard."

"I know I don't want to be a systems analyst when I grow up!"

"This was hard, but it was the best school project I've ever done!"

The following material may be useful to supplement the Career Kit.

Work-A-Day: Your Classroom Employment Agency, by Elizabeth Marten; \$8.95.

Your Classroom Corporation, by Nina Crosby; \$8.50.

They are available from
United D.O.K.
PO Box 605
East Aurora, NY 14052.

The Gifted in Search of a Career

by Mary Meeker

A few gifted children do know, often as early as age four, what they want to be when they grow up. And they remain focused, following that path unswervingly. Most gifted students, because they know where they stand with respect to academic skills and know fairly well how those skills relate to jobs and careers, easily relate their scholastic achievement to traditional jobs clusters.

- A gifted reader who performs outstandingly in English might elect to become an English teacher, a journalist, a lawyer, or to enter some other semantically oriented career.
- The obvious fields open to a top-notch math student are math teaching, engineering, computer design and programming, or other symbolic field.
- A gifted student with high figural abilities interested in science might consider becoming a science teacher, a research scientist, or following some other science-oriented pursuit.
- Careers in art and music are considered if there is talent as well as accomplished performance.

Gifted students are, however, less aware of how their abilities, beyond the academic ones, relate to the world of work. These other gifted abilities are very much like hidden assets, unfamiliar to them unless revealed by testing. One of the most frequent complaints from the gifted is that they have too many options – they do well in just about anything they work at or in which they are interested. For these students, unlike the dedicated four-year-old, the problem is a lack of focus – they find it hard to choose from all they would like to do.

Option 1

Counselors can advise them by making it clear how they can easily do double majors in college and get two degrees while they are making up their minds about what they enjoy. Decisions made at ages 17 and 18 ought to be based on a flexible plan. Double majors allow that. Interest inventories reflect what the student is most interested in at the moment – but interests fluctuate over time and are unpredictably influenced by teachers, mentors, and experiences.

Option 2

A second option is to select careers based upon their gifted abilities. Abilities do not fluctuate so easily and, moreover, they can be further developed with specific training.

The SOI Career Test provides a profile of 24 intellectual abilities. A computerized analysis compares this profile against a wide range of careers, many of which go beyond those directly related to academics.

On the next page are examples of potential careers to consider for one student. A student chooses six careers for comparative evaluation, but then the analysis continues with a listing of fifteen additional careers graphed in descending order of best fits with individual abilities. And since gifted students are not necessarily gifted in all respects, the SOI analysis tells them where they need to improve if their currently developed abilities fall short of the desired career requirements and suggests instruction to accomplish the improvement.

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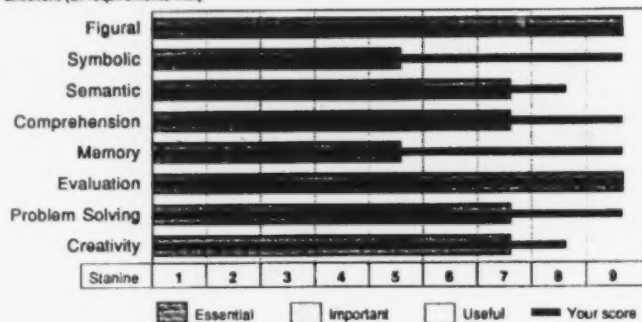
How would you like a job where, if you make a mistake,
a big red light goes on and 18,000 people boo?

Jacques Plante, Former hockey goalie



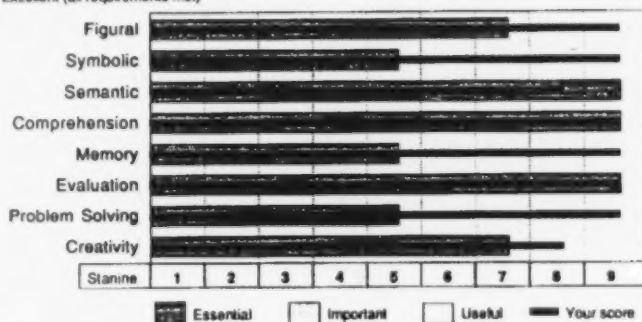
Art Gallery Curator

Fit: Excellent (all requirements met)



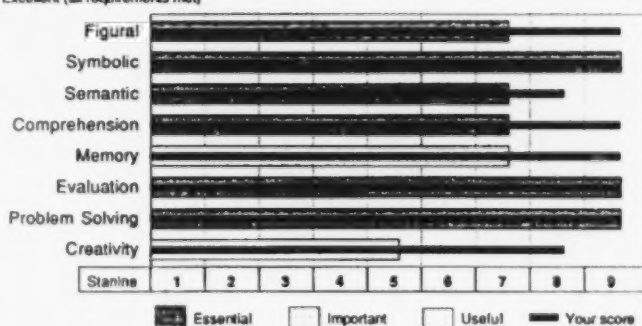
Advertising

Fit: Excellent (all requirements met)



Environmental Engineering

Fit: Excellent (all requirements met)



Three career possibilities for a multipotential girl whose profile of strengths would suit her for nearly any career.

A Career Awareness Unit for Sixth Grade GATE Students

by Mary Ann Price

A unit that has been very successful with my sixth-grade GATE students is the Careers Unit. I begin by having the children do personal interest inventories to focus on their abilities and strengths. Throughout the four- or five-week unit I present many awareness activities to introduce them to varied careers. Then they research a career of their choice and focus on all aspects of that career: preparation, hours, salary, all the good features, and also all of the problems they might face in that career. I have accumulated a great deal of information to help them in their research. Part of the research is conducting an interview with someone currently in the career they have chosen. This interview, which calls upon the students to develop and refine both speaking and writing skills, becomes a major part of their final research project.

One of the most exciting parts of this unit are the guests the students invite to class. Each guest is an adult who comes to talk about his or her career and answer questions from the class. We've had actors, medical professionals, athletes, engineers of all kinds, veterinarians, special police teams such as SWAT and K-9 Corps members, people in business and sales, and many others. The operating room nurse, for example, caught everyone's attention with trays of instruments, a patient (from the room next door), a red construction paper heart on which to operate, and a marvelously realistic performance. People in the community have proven more than willing to share their profession with the students.

Inviting guests is the complete responsibility of the students. They extend the invitations, introduce the guests to the class, and follow up with thank-you notes.

This unit is a great way to end the school year, and the sixth graders are always enthusiastic about it.

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Gifted Students Are At Risk Too

by Gail Hanninen, Paula Fascilla, and John Anderson

Adapted from an article in Curriculum in Context, published by the Washington Association for Supervision and Curriculum Development; Spring/Summer, 1990.

Who are the students who are at risk of dropping out of school, of learning to hate school, of becoming alienated from others, or of drifting into crime? Based upon a broad definition of at-risk, any student has the potential of becoming at-risk by having to frequently accept failure as a common experience, by underachieving his/her potential ability, or by cognitively and/or physically being a dropout (AASA, 1989).

By reviewing research, student data, and case studies, professional educators know that a significant number of at-risk students are gifted. Frequently, at-risk gifted students go unrecognized and are inappropriately or inadequately served in our schools.

Is the old adage "gifted students will make it on their own" really a MYTH? In the state of Washington, one alternative high school found 13% of its entering students to be gifted; implying they had dropped out of school prior to making a decision to return to an alternative learning environment. Such students did not necessarily complete the alternative high school program. A sampling of incarcerated youth in our state indicates that, conservatively, 3-5% of these young adults intellectually function in the superior or gifted range. Statistical information is not available for the number of gifted students who have committed suicide in the state of Washington, but a review of several individual scenarios indicated that many of the young people committing suicide in the Puget Sound area in the past four years demonstrated some qualities of giftedness.

Nationally, a report to Congress stated that 17.6% of gifted students drop out of school and that a majority of gifted students work at least 2-4 grade levels below their potential if not provided an appropriate education (Marland, 1972). Using a conservative definition for giftedness, Harvey and Seeley (1984) found 18% of youth entering a juvenile justice system in Colorado to be gifted. A study conducted on teenage suicide in four counties of Texas found 16% of those students to be gifted.

Certainly, not all gifted students become

at-risk, however, the percentage appears high. In the course of this article, case studies and issues surrounding identification and programming options will be presented to provide the reader with insight into the complexity of the issue.

Case Studies

Student #1—The Alienated Gifted Girl

Melinda learned very quickly in elementary school, but her teacher would not let her work on division until the other students had completed multiplication. Though she was a voracious reader, the librarian would not allow her to check out fourth grade books as a second grader. Still, Melinda liked school and wanted to use her skills, so she pointed out her teacher's spelling and computational errors. She received her first dose of negative feedback about being smart.

By junior high, Melinda was developing some coping skills. For example, by intentionally limiting her vocabulary and subverting her grades, she gained tentative acceptance by a hitherto inaccessible wilder group. She played with them a role that she was aware of but they were not.

Drug and alcohol abuse began in junior high but tapered off in high school. She became disenchanted with the parties, but still attended. She often thought of suicide, and tried it once.

Since early childhood, Melinda had related best to people much older than herself. They seemed so much more mature than her age-mates. She was very close to a few of her teachers and excelled in their classes, though she did poorly in most. Her boyfriend of twenty-six had dropped out of school when he was sixteen and resented her being there. She accepted his physical and mental abuse, because, with her low self-esteem, she perceived him as the kind of person she deserved. When she became pregnant, he knew he had her and she had found a way out of her misery.

Melinda later had an abortion and left her boyfriend. Despite all her doubts, a resilient inner core of a positive identity remained. Though she dropped out of school and worked

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in fast food restaurants for three years, she eventually entered college and her new world (Anderson, 1986).

Student #2 - The Youthful Offender

With an early label as "trouble maker", John had difficulty with school from the beginning and was even considered for placement in a class for behaviorally disabled students. Concurrently, he was an avid reader.

His family life was characterized by turmoil. Divorce, frequent moves, and intervention by Child Protective Services marred his childhood. At the age of twelve, John started running away from home and was challenged to survive. Since this lifestyle required exceptional creativity to meet basic needs, he resorted to some illegal activities.

Currently, John is serving time in a juvenile detention center where he is in a class taught by a very sensitive teacher. The teacher noticed John's unusual ability to grasp concepts quickly, to fill in learning gaps, and to

function as a charismatic leader. He describes John as a survivor.

Issues Surrounding Identification

How can educators find those students who need the services of a gifted program? Currently, most school districts depend on teachers to recommend individual students. For a variety of reasons, an at-risk gifted child may not be perceived as gifted. Some at-risk gifted students live in highly mobile families, which prevents teachers from knowing a student well enough to recognize latent abilities. The parent(s) may lack the time and emotional energy to pursue appropriate opportunities for their child. Academically, by middle school several years of low productivity and underachievement may be reflected in depressed standardized test scores for students who were not identified at an early age. Occasionally due to language barriers, test bias, and the quality of assessment procedures, at-risk gifted students who have been referred and evaluated are denied access to gifted program options.

In order to identify gifted children who are at-risk, the following practices need to be considered:

- Broaden the concept of giftedness. Researchers are exploring different ways of defining intelligence (Gardner, 1983; Sternberg, 1986). Gardner identifies seven intelligences: linguistic, logical-mathematical, musical, spatial, bodily-kinesthetic, interpersonal, intra-personal skills. As gifted programs begin to consider intelligence in broadened terms, many at-risk gifted students will be identified.
- Identify students early in their educational career. Roedell (1989) indicates that early identification by the age of five is invaluable. In Melinda's case, early nurturing of her talent could have been part of the formula for prevention of later choices and failures.
- Increase the nomination pool. Parents and teachers should learn about at-risk children, their behavioral characteristics, and their unique learning needs (Figure 1). In addition, school districts should consider administering a group aptitude test in a primary grade. This practice would enable all students to be considered, regardless of classroom performance, behavior, parent background and involvement, or teacher awareness.

At-Risk Indicators (AASA, 1989)	Gifted Student Behavioral Manifestations (Seagoe & Hersey, 1977)
1. Alienation from others	1. Seeks success and recognition; sensitive to criticism; vulnerable to rejection by peers; needs many types of groups; has problems in developing social leadership; overly critical of others.
2. Dysfunctional family	2. Possesses heightened awareness, intuitiveness and sensitivity, AND feels a lack of control.
3. Chemical dependency	3. Frustrated with inactivity and lack of progress; resistant to directions or authority figures.
4. Poverty	4. Extremely sensitive to criticism; lacks basic competencies; low self-esteem; easily disillusioned by social injustices.
5. Mobility of the family	5. Seeks structure, order and consistency; invents own value system.
6. Language and cultural differences	6. Needs specialized reading assistance early; parent resistance to reading; escapes into verbalisms; needs help in exploring and developing interests; needs flexible and individualized program options.
7. Juvenile delinquency	7. Shows non-conforming behavior; problems with rejection and rebellion; extremely stubborn; low self-concept; lacks peer acceptance; rebels against too much direction.
8. Several early school failures	8. Critical attitude towards others; discouraged by self-criticism; rejects interruptions.

Figure 1. Manifestations of At-Risk Indicators in Gifted Students

Critical Needs of At-Risk Gifted Students (Hanninen & Lynch, 1985)	Programming Options (Alamprese & Erlanger, 1989)
1. Positive relationship with an adult role model 2. Learning of values and valuing education 3. Decision-making skills to support making appropriate choices 4. Appropriate pacing of academic training	1. Mentorships, apprenticeships, job shadowing 2. Provide enrichment experiences, topical seminars, and in-depth study in an area of each student's interest, group counseling 3. Train in specific decision-making and problem-solving skills, and complement with participation in such programs as Odyssey of the Mind or Future Problem Solving Bowl 4. Use flexible scheduling, grade or course acceleration, advanced subject placement, option of challenging or testing out of course units or classes, community college or university course placement, tele-course offerings, night school classes

Figure 2. Programming Options

- Develop an overall practice of inclusion within the identification model. Damage is often done to those who are near qualifying, but are not selected for programs. Several strategies can be incorporated into a district's identification procedure which emphasizes involving at-risk gifted students. First, alternative tests should be available and used, so that students with limited English or cultural differences can be considered equitably. Second, particularly with middle level and high school age students, provide an option for students to self-select into a program, initially on a trial basis with certain performance expectations to be met. For specific honors and Advanced Placement classes, self-selection is a very appropriate option to use.

Issues Surrounding Programming

Because the gifted population is not homogeneous, meeting the academic, social, and emotional needs of at-risk gifted students necessitates that schools respond to three areas of the school organization: (1) age-level requirements, (2) grade-level emphasis on curriculum and instruction, and (3) class scheduling. For some at-risk gifted students, the focus needs to be on intellectual peers instead of age-mates, as time to interact with intellectual peers is a necessary experience. To meet that need, Melinda sought a relationship with a boy-friend ten years older than herself.

The issue of grade-level knowledge and skills is not necessarily relevant to many highly gifted students, as observed with John. Emphasis would be better placed on using individual planning and flexible pacing of instruction based upon a student's performance. It

should be possible for an eight-year-old gifted student to study fifth-grade mathematics if that is his/her instructional level.

The inflexibility of school schedules is often frustrating to the gifted student. Just when he/she is ready to study a topic of interest in-depth, the bell rings or the unit of study is terminated and an entirely different one is undertaken by the class. The gifted student feels no control over what he/she can learn and frequently becomes resentful.

Figure 2 highlights programming options which have been recommended to address many of the critical needs of at-risk gifted students. In addition, administrators need to recognize that inappropriate gifted program services may push identified gifted students into at-risk behaviors.

It is imperative that the school experience demonstrate its relevance to the world of work. Activities such as career seminars, career counseling, and vocational evaluation allow for inner reflection and self-understanding. At the same time, mentorships and apprenticeships may serve the dual functions of increasing awareness of career opportunities and providing a positive adult role model.

Programming options need to be "designed to bolster students' current knowledge of subject content, extend their capacities for learning, and enhance their life experiences" (Alamprese & Erlanger, 1989, viii). Certainly, at-risk gifted students cannot be treated as a group with similarities, but more as individuals who need to be perceived in terms of the whole child. Individualized planning must occur to enable the student to access a variety of school and community resources and learning options.

Summary

The incidence of giftedness among at-risk students is high. To reach at-risk gifted students, it is necessary to educate teachers and administrators about the nature and needs of such students, as several stereotypes of the classic gifted student need to be changed. The diversity and complexity of at-risk gifted students and their stories is great, but when identified early, successes do occur as highlighted in the following case.

Edward is now a fifth-grade student in a self-contained gifted program classroom. However, his first experiences in school involved him in special preschool programs for students with severe language delays. He achieved tremendous growth and was nominated for the gifted program early in second grade. His principal was a strong advocate, as she was

convinced that Edward had special abilities. Without the use of an identification model reflecting the concepts of multiple intelligences and the need to recognize behavior characteristics of culturally diverse gifted children, he would have been missed. However, the combination of advocacy, early intervention, and flexibility worked, and his academic placement is serving him well.

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ON THE LIGHT SIDE

by Jean Watts



"But Dad, given my interest in social change, power and creativity ... Music Videos is a logical major."

Career Planning for Gifted and Talented Youth

by Barbara Kerr and Connie Belin
for the Council for Exceptional Children
Reprinted from the ERIC Flyer File on Gifted

Although parents and teachers may be concerned about academic planning for gifted and talented young people, they often assume that career planning will take care of itself. Students may have many choices available because of multiple gifts or a particular talent, and a career choice in that area seems inevitable. There is no need for career planning: The student is simply expected to make an occupational decision around the sophomore year of college and then follow through on the steps necessary to attain that goal.

Unfortunately, evidence is mounting that youthful brilliance in one or more areas does not always translate into adult satisfaction and accomplishment in working life. Studies with such diverse groups as National Merit Scholars (Watley, 1969), Presidential Scholars (Kaufmann, 1981), and graduates of gifted education programs (Kerr, 1985) have shown that the path from education to career is not always smooth, and it may be complicated by social-emotional problems and needs of gifted students that differ from those of more typical students.

Recognition of these problems has produced counseling models that address student needs (e.g., Berger, 1989; Buescher, 1987; Silverman, 1989; VanTassel-Baska, 1990). Some factors that can contribute to problems with career planning are presented here, along with ways of preventing and intervening with career development problems.

Multipotentiality

Multipotentiality is the ability to select and develop any number of career options because of a wide variety of interests, aptitudes, and abilities (Frederickson & Rothney, 1972). The broad range of opportunities available tends to increase the complexity of decision making and goal setting, and it may actually delay career selection. Multipotentiality is most commonly a concern of students with moderately high IQs (120-140), those who are academically talented, and those who have two or more

outstanding but very different abilities, such as violin virtuosity and mathematics precocity. Signs that multipotentiality is a concern include the following:

Elementary school: Despite excellent performance in many or all school subjects, students may have difficulty making decisions, particularly when they are asked to make a choice on topics or projects from among many options. Multiple hobbies with only brief periods of enthusiasm and difficulty in finishing up and following through on tasks (even those which are enjoyable) are additional signs for concern.

Junior high: Despite continued excellence in many or all school subjects, difficulty with decision making and follow-through continue. Students may participate in multiple social and recreational activities with no clear preferences, and they may overschedule, leaving few free periods and little time to just think.

Senior high: Decision-making problems generalize to academic and career decisions, resulting in overly packed class schedules and highly diverse participation in school activities. Students often accept leadership of a wide variety of groups in school, religious activities, and community organizations. Adults may notice occasional signs of stress and exhaustion (absences, frequent or chronic illness, periods of depression or anxiety, etc.), or they may see evidence of delay or vacillation about college planning and decision making. Students are able to maintain high grades in most or all courses taken. An important clue to continuing multipotentiality is the student's vocational interest test profiles. These tests often show interests and similarities to an unusually large number of occupations.

College: Multipotential students often have multiple academic majors. Three or more changes of college major are not unusual for an individual who cannot set long-term goals. They continue intense participation in extra-curricular activities and have outstanding academic performance but are concerned about selecting a career. They may make hasty, arbitrary, or "going-along-with-the-crowd" career

choices. They may encounter the dilemma of opportunities lost in giving up some interests in favor of others.

Adulthood: Some of the implications of multipotentiality can be seen in bright adults who, despite excellent performance in most jobs, hold multiple positions in short time periods and experience a general feeling of lack of fit in most jobs. Some experience feelings of alienation, purposelessness, depression, and apathy despite high performance and excellent evaluations. Some experience periods of unemployment and underemployment, or they fall behind same-age peers in career progress and, sometimes, social development (marriage, family, community involvement).

Possible intervention strategies for multipotentiality at different educational levels include the following:

Elementary School

- Provide realistic exposure to the world of work through parent sharing and exposure to parents' working places.
- Encourage career fantasies through dress-up and plays.
- Encourage focusing activities such as class projects or achievement of Scout merit badges, which require goal setting and follow-through.
- Use biographies of eminent people as primary career education material.
- As teachers or parents, carefully evaluate skills, talents, and interests in order to help children understand possible areas of greatest interest.

Junior High

- Discuss the meaning and value of work.
- Discuss family and community values pertaining to work.
- Provide for light volunteer work in several areas of interest.
- Provide "shadowing" experiences in which students spend the day with an adult working in an area of greatest interest.
- Discourage overinvolvement in social and recreational activities for the sake of involvement; prioritize and decide on a few extracurricular involvements.

Senior High

- Seek appropriate vocational testing from a guidance professional or psychologist.

- Encourage visits to college and university classes in a few areas of interest.
- Provide for more extensive volunteer work.
- Explore possibilities of paid internships with professionals.
- Insist on a solid curriculum of coursework in order to insure against inadequate preparation for a later career choice.
- Provide value-based guidance, which emphasizes choosing a career that fulfills deeply held values.
- Discourage conformist, stereotyped career choices.
- Expose students to atypical career models.

College Students and Young Adults

- Seek career counseling including assessment of interests, needs, and values.
- Enroll in a career planning class.
- Encourage careful course selection.
- Avoid conformist and stereotyped major choices.
- Seek a mentor.
- Engage in long-term goal setting and planning.

Early Emergence

Early emergers (Marshall, 1981) are children who have extremely focused career interests. A passion for an idea and an early commitment to a career area are common childhood characteristics of eminent individuals in a wide variety of professions (Bloom, 1985; Kerr, 1985); thus, early emergence should not be thought of as a problem of career development, but rather as an opportunity that may be acted upon, neglected, or, unfortunately, sometimes destroyed. Acting upon early emergence means noticing an unusually strong talent or enthusiasm, providing training in skills necessary to exercise that talent, providing resources, and keeping an open mind about the future of the talent or interest. Neglecting early emergence means overlooking the talent or interest, or failing to provide education and resources. Destroying the early emerger's passion may not be easy, but belittling the talent or interest ("Who cares about someone who doodles and draws all the time instead of listening?" "What makes you think you can become an anthropologist?") may easily extinguish the flame. Insisting on well-roundedness or disallowing needed training (e.g., refusing to allow a math-

ematically precocious child to accelerate in math) may diminish the passion. Overly enthusiastic encouragement and pressure may also remove the intrinsic pleasure the child feels in the interest or talent area.

As with multipotentiality, there are signs of early emergence:

Elementary school: Avid interest in one school subject or activity with only general liking for other subjects and activities, and extraordinary talent in one area and average or above average performance in others are underlying signs of early emergence. (These students may be mistakenly labeled as under-achievers). Students may also try to write more papers than required, choose too many subjects in the area of interest, and mention early career fantasies about success and fame in a particular area of interest.

Junior high: Students continue highly focused interests and may express a strong desire for advanced training in an area of talent and interest. Development of adolescent social interests may be delayed because of a commitment to work in a talent area or because of rejection by others, yet performance in the talent area grows, while performance in other areas diminishes.

Senior high: Students may develop a strong identity in the talent area ("computer whiz," "artist," or "fix-it person," for example). They may express a desire for help with planning a career in an area of interest. A desire to test skill in competition with or in concert with peers in the chosen talent area and continued high performance in the talent area to a degree that causes neglect of other school subjects or social activities are additional signs of a focused interest and passion.

College students and young adults: These young people make an early, but not hasty or arbitrary, choice of career or major. They often show a desire for completion of a training period in order to "get on with work," seek out mentors, continue intense focus, and often neglect social and extracurricular activities.

Adulthood: Adults may continue their intense focus, desire eminence or excellence in the talent area, and possibly forego or delay other aspects of adult development such as marriage, nurturing of a younger generation, social and community involvement, and personal development.

Possible intervention strategies for early

emergers at different educational levels include the following:

Elementary school

- Provide for early identification of unusual talent or area of precocity.
- Consult with experts on the nature and nurture of particular gifts or talents.
- Consult with the school on ways of nurturing the talent or gift.
- Encourage fantasies through reading of biographies and playing of work roles.
- Provide opportunities to learn about eminent people in the talent area (attend a concert; visit an inventor's workshop; attend a math professor's class).
- Relate necessary basic skills to the area of interest.
- Provide opportunities to socialize with children with similar, intense interests through such activities as music camps, computer camps, and Junior Great Books.
- Strike a careful balance between encouragement and laissez-faire; provide support for the interest along with freedom to change direction. Do not become so invested in the child's talent or interest that you fail to notice that the child has changed interests. (Early emergers most often change to a closely related interest; that is, they switch musical instruments or transfer an interest in mathematics to an interest in theoretical physics).

Junior High

- Provide support and encouragement during the intensive training that often begins at this point.
- Allow for plenty of time alone.
- Seek opportunities for job "shadowing" (following a professional throughout the working day) in area of interest.
- Seek opportunities for light volunteer work in area of interest.
- Avoid pressuring the student into social activities.

Senior High

- Continue support, encouragement, and time alone.
- Seek opportunities for internships and work experiences in the areas of interest (internship on archaeological dig; job as camp counselor at a fine arts camp; coaching younger people in musical or athletic skill).

- Seek career guidance from a guidance counselor who is familiar with the talent area or from a professional in that field.
- Make a detailed plan of training and education leading toward the chosen career goal, including financial arrangements.
- Explore higher education or postsecondary training early and thoroughly, with contacts and visits.
- Help the student establish a relationship with a mentor in the area of interest. Early emergers often fare better in a less prestigious institution where they have access to an enthusiastic mentor than in an Ivy League or high status institution where they do not.

College Students and Young Adults

- Help provide support for extended education and training.
- Encourage the development of knowledge of career ladders in the area of interest (auditions, gallery shows, inventor's conventions, etc.).
- Encourage a continuing relationship with a career counseling or guidance professional for support in decision making and problem solving.

The career development problems discussed here are nearly opposite one another: The multipotential student seems unfocused, delaying, and indecisive, whereas the early emerger is focused, driven, and almost too decisive. Both types carry with them dangers and opportunities. Skillful career education and guidance can help ensure that neither multipotentiality nor early emergence leads to difficulty in career planning and development.

Career Planning for Special Populations Minority Gifted Students

Minority gifted students have special career planning needs as well as needs related to multipotentiality or early emergence. Minority students from Black, Hispanic, and American Indian backgrounds are less likely to have been selected for gifted education programs and less likely to perform well on standardized achievement tests than their nonminority peers. In addition, they may have lower career aspirations because of lower societal expectations. Nevertheless, the patterns of leadership and

out-of-class accomplishments of gifted minority students are very similar to those of nonminority gifted students (Kerr, Colangelo Maxey & Christensen, 1989). Minority gifted students are active leaders in other communities. Therefore, career counseling for these students may be most effective when it focuses on raising career aspirations and emphasizes out-of-class accomplishments as indicators of possible career directions. Career planning must also go hand-in-hand with building a strong ethnic identity if later conflict between ethnic identity and achievement in majority society is to be avoided. Colangelo and LaFrenz (1981) have provided suggestions for how this can be accomplished.

Gifted Girls and Women

Persisting sex role stereotypes and the continued socialization of girls for secondary roles means that, despite great gains in certain fields such as medicine and law, gifted girls are less likely than gifted boys to achieve their full potential. Although gifted girls outperform gifted boys in terms of grades, gifted boys achieve higher scores on college admissions examinations. Compared to gifted boys, gifted girls are underprepared academically, having taken fewer mathematics and science courses and less challenging courses in social studies. As a result, they have fewer options for college majors and career goals (Kerr, 1985). Bright women apparently let go of career aspirations gradually, first through underpreparation and later through decisions that may put the needs of husbands and families before their own. Gifted women fall behind gifted men in salary, status, and promotions throughout their working lives.

In order to ensure that gifted girls have the greatest possible chance to fulfill their potential, career planning should emphasize rigorous academic preparation, particularly in mathematics and science; maintaining high career aspirations; and identifying both internal and external barriers to the achievement of career goals. Many suggestions for career planning for gifted girls are provided in *Smart Girls, Gifted Women* (Kerr, 1985).

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The Oregon Model

by Jody Hess

From a conversation with Bob Siewert, Consultant with the Oregon State Department of Education

Much is being written about the Oregon experiment with school restructuring. A phone interview revealed the following information about the place of gifted students in the new model.

Q. Where do the gifted fit into the restructuring of Oregon schools?

A. The purpose of the restructuring is to focus on the individual needs and differences of students. Students will be offered more program options as a result of the changes.

There will be a certificate that can be earned at the end of the tenth grade called the Certificate of Initial Mastery. This would be approximately equivalent to the core program in reading, math, science, and so forth.

At this point, the program diverges from the traditional program. The remaining two years of public school will be taken within an area of emphasis, or strand. There will be six to eight strands of career and vocational education from which to choose. Examples are: Legal, Public Service, and Government; and Architecture, Engineering, and Building Trades. At the end of the course of study students would be eligible for a Certificate of Advanced Mastery.

Within each strand, students would be provided with an Individual Student Plan. Approximately 60% of the students would have similar plans reflecting "average" abilities. Differentiation for the other 40% of the students would be accomplished by the plan. There would be no separate programs or curriculum for students at either end of the continuum, but low and high achievers would be targeted by their Individual Student Plans to receive appropriately differentiated service.

Q. Would there be accommodation for accelerating the program for students?

A. Earlier mastery of the content should allow for earlier exiting of the program. Thus, a student may potentially be accelerated and leave school earlier. Outcome measures will allow for flexible pacing.

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TECHNET

MATH MASTERY

Gifted children are often put off by rote mastery and repetitious drill needed to acquire the habitual rapid response skills needed for further development of advanced concepts in mathematics. Thus they fail to develop the facility with many number relationships so basic to future success. All math courses – algebra, calculus, geometry, trigonometry, statistics – are dependent on strong foundations in simple mental calculation and estimation, which provide the freedom to concentrate on new relationships and complex manipulations of variables and functions. Elementary teachers must motivate and help GATE students to develop these basic skills, and resist the temptation to think, “They’ll get it later, with a calculator.”

Perhaps the most critical skills (beyond counting, addition, and subtraction) are perfect mastery of multiples and factors, plus the meaning and manipulation of fractional relationships. Without these, many bright students may falter or even fail to continue in the mathematics so needed for almost every career. If a student has not gained absolute mastery of these “alphabets of mathematics,” their future instruction will be hampered and needlessly painful, if, indeed, they continue at all.

Sometimes, gifted students may successfully hide from math practice by being so busy and articulate, so good in other subjects, by conning teachers into letting mastery slide, or by using other compensating devices to mask a real deficiency. These skills are taught in the lower grades where children may succumb to the idea that “I understand, so I don’t need to memorize.” Emphasis on calculator use is fine for some topics in math, but there is no substitute for the insights and analysis provoked by a quick memory. Ask AP Calculus or Junior College Algebra teachers. Remember the post-

test response, “I did the right steps but got the wrong answer.” That is not good enough for our gifted students.

We have available a plethora of acceptable as well as exemplary software to assist all students to achieve this mastery. Children usually enjoy any computer practice, but teachers owe it to children to choose that which involves many modes of learning and affective domains, where learning creeps in with understanding. The “fun” comes from successful incremental growth and the “Aha, I can do it!” more than from any glitzy graphics or competitive games. Some of the decade’s top titles are *Math Blaster* by Jan Davidson, Tom O’Brien’s *Teasers by Tobbs Series* from Wings and MECC’s *Number Munchers* and *Fraction Munchers*. Start young with *Math Rabbit* from Learning Company, or use Scholastic’s *Math Shop* for older experts. Each of these has multiple levels of activities with engrossing mental challenges, provoking lots of thinking and use of facts and strategies. They provide quick feedback and rewards for accuracy, resulting in sequential skill building. Teachers provide the setting, tools, and discussion of results which translate the experiences into long-term memory.

Expectations and Motivation

Here is my favorite success story, the reason I insist that we can’t accept less than mastery. Susie, the top reader/writer, fifth grade president, social leader, library aide, etc., accidentally got involved in a “Math Blaster” day in computer lab. Soon it became evident to her, her partner, and the teacher, that she could not do the very low level subtraction games. So Susie became “too busy” to get back to lab for any more of that stuff. Finally we talked to her privately, speculating on what math classes she would be assigned in middle school and high school. She decided it wouldn’t fit her

Continued on page 22

NUMBER

NUMBER MUNCHERS: A Game for All Reasons

by Patricia Lawrence

WHAT is NUMBER MUNCHERS?

A. One simple MECC disk contains five games for practicing *Multiples*, *Factors*, and *Primes*, with *Equalities* and *Inequalities* in your choices of addition, subtraction, multiplication, or division. In each game students move their markers around a grid "munching" those numbers which fit the criteria stated at the top of the screen, while eluding Troggles who not only try to munch the player but also change the numbers they pass over. When all matches are correctly removed, more advanced levels appear, with ever craftier Troggles to be evaded. Scores increase with difficulty, until four misses end a game.

Teacher Options (accessed from the main menu by pressing "Control + A") allow you to select exactly those skills you want targeted for student practice, turning off those already mastered or not yet taught. For example, if your third graders need subtraction practice, modify the *Inequalities* game by turning off all operations except subtraction and set the range for 10 to 30 with random order. That should be complex enough for most GATE students, yet simple enough for success with appropriate range of numbers. Please note, however, that just using the disk without setting any parameters can give an unnecessary sequence of tedium for older students. Teacher or students can reset Options at any time. The disk keeps a record of successful students' progress in a High Scorers chart in which the student enters his or her own name.

B. With a related MECC disk, *Teacher Option Organizer*, you can Load and Save the previously set options from Muncher disks, then Copy to quickly change the *Number Muncher* parameters for various students' needs, or to quickly set options on multiple disks for lab use. (Note: this works similarly for many other MECC disks. Try it.)

Equipment needed: single computers in classrooms, or complete labs

Apple II family, Macintosh, or IBM versions of software

Number Munchers is available from MECC, (800) 228-3504

Who Needs to Use NUMBER MUNCHERS?

Useful for any grade 1-8 (choose appropriate sections), any age (fun even for adults who like math or think they're mathphobic). Junior high age students, who like the PacMan appearance of this game, can legitimately get remedial learning while saving face. Even algebra students can plug the skill gaps. These lessons have been used by my students in grades 3 through 8, by varying only the time required and depth of understanding reached.

Teacher Preparation/Time

Teacher needs to play to understand all the potential parameters the disk offers, in order to tailor the learning task to student needs, which usually vary by group and individual. Teachers sometimes play for high scores to spice up competition with class experts. (Imagine finding that your own speed, performance, and insights into patterns and relationships will also grow!)

Some time is needed to prepare and set options on disks, or to teach students to configure their own options, whether using one disk per class or a lab set. Take one hour to learn the *Teacher Option Organizer* disk and to input group settings, the easy way to change disk parameters for individual needs.

Teachers who are not math specialists get new insights into the learning processes needed by children to cope with *Number Munchers'* complex task demands. It's not enough to just follow the textbook.

MUNCHERS

Off-Line Instruction (a necessity!)

Factors and Rectangular Numbers

In one introductory lesson for the **FAC-TORS** game (using Marilyn Burns' model), children are given graph paper and multilink cubes or square markers. Discussion and demonstration start them on a project of picturing all the ways a number can be arranged in rectangles. For example, two markers can only become a single 1 by 2 rectangle; four can be both 1*4 and 2*2; twelve can be 1*12, 2*6, and 3*4; and so on going as high as students are able. Finding these in order and completely, grouping markers by ones, twos, threes, etc., gives the student true understanding of the factoring process. Recording these graphically further develops spatial multiplication concepts, and the meaning of prime (one way only) numbers becomes clear. Labeling each number with all its possibilities gives a visual record of all the factors of each number. This makes a great bulletin board, too. Older students can list the sets of factors systematically, and use them for finding greatest common factors (GCF) and least common denominators (LCD), essential for manipulation of fractions and later functions.

On-line Instruction:

When to Use **NUMBER MUNCHERS**?

Before, during, and after off-line math instruction.

Before instruction

Demonstrate program to whole class, familiarize them with goal of munching numbers which fit the criteria written at the top of the screen, and with keyboard movement of the Muncher. Show different levels as class curriculum demands:

- to provide a "need to know" these basic facts, often seen as irrelevant by gifted children

- to assess present capabilities of class members as to where to start or continue instruction: listen and watch, to observe their knowledge and thinking strategies!

During instruction

- to develop vocabulary and discrimination, especially in *Equalities* and *Inequalities*, targets are greater than, not equal to, and less than a given number
- to model examples and non-examples; read feedback frames
- to show relationships between factors and multiples, and the importance of primes.

After instruction

- to motivate practice for factual mastery and speed;
- to assess progress; frequent misses or very short games may show a guessing strategy demonstrating the need for explanation or instruction;
- to individualize practice with variety.

Students may play alone or as partners for *cooperation skills* (discussing rationale, getting consensus), for *assistance* (one points out choices, may verbalize directions like "go 2 right, 1 up, then space bar" while other manipulates keyboard to Munch answers), for *stimulation/motivation* (peer approval or competition). Better use of lab time also comes from small group involvement in play. Vicarious or spectator learning counts!

Computer followup play can be ongoing throughout the year, intermittently or regularly, as needed or for fun (much like chewing gum, and just as popular with the kids!)

image to be in the remedial classes, or to fail among her bright friends; so she agreed to come in for private practice on the basics. With this motivation, using the tutorial parts of *Math Blaster*, she quickly gained facility with subtraction. (Yes, she got the facts *memorized*, that dirty word.) She could hold her own in those games. She continued the individual "private" learning sessions on *Math Blaster* until she had similarly learned the multiplication and division facts. She even went on to teach herself the fraction-decimal-percent equivalents in the game, and could explain their relationships and how to convert among them – all in one semester, way ahead of her classmates (impossible without factual insights). This was a thrilling outcome, demonstrating the power of a gifted mind to "learn to learn." What she needed was the motivation (and nobody likes to admit a weakness or failure), the expectation, and the opportunity with tools to teach herself.

Skills or Concepts?

Skill is ability to separate or discern; great ability or proficiency; expertness that comes from practice, training, etc. *Concept* is a generalized idea about a class of things, an abstract notion. Both are needed, but are differently acquired. Concepts cannot be built without some basic information or facts. Developing skills is a matter of practice.

Susie's experience in mastery can be replicated every week in any grade with all students. (Some students don't need memory help; other software for enrichment or acceleration for them is another whole chapter.) Available software provides the tools and motivation, often with performance records for encouragement, diagnosis, and assessment. The teacher's challenge is to provide background or manipulative experiences, access and time for children to learn math in depth, breadth, and complexity.

Gifted people crave and seek underlying principles, relationships among systems, and generalizations about a discipline. In the lesson, *Number Munchers*, on the previous pages, lets students operate at both the skill and concept levels, with a bit of "mind-tickling" by their teacher/mentor to encourage building those generalizations.

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My father taught me to work, but
not to love it. I never did like to work,
and I don't deny it. I'd rather read,
tell stories, crack jokes, laugh –
anything but work.
Abraham Lincoln

Professional Apprenticeship Provides Career Experience for Gifted Students

by Patricia Bernick and Juanita Felton

Possessing an abundance of intelligence, talent, energy, and creative interests can create massive career choice problems for young people. Since career training usually takes longer than preparation for marriage, parenthood, or retirement, the career choice decision process is vital to high school students. When such an important demand is placed on the young by society, public education must assume some responsibility for ensuring the very best decision is made.

The Professional Apprenticeship program in Virginia Beach City Public Schools was started in 1981. The program began through a Title IV-C grant to implement Project CAPS, *Career Awareness for Precocious Students*. Project CAPS was designed to increase the career perceptions of senior high school gifted students. These students, identified by standardized test scores above the ninety-seventh percentile, are not always capable of handling problems and making decisions without assistance. When one is able to "do anything" the problem of making the best choice for career training is exponentially more important. The Project CAPS program evolved into the current Professional Apprenticeship course.

The Professional Apprenticeship program is a one-semester, seventy-five hour, one-half credit course designed for students who would like assistance in making career decisions. Students are paired with community professionals in a one-to-one relationship to gain firsthand experience in a career field of the student's choice.

Course Requirements

The seventy-five hours required include:

- 16 hours attending evening seminar classes,
- 6 hours conferencing with the gifted resource teacher,
- 40 hours working with a mentor,
- 3 hours in interviews with professionals in a chosen field, and
- 10 hours additional time with a mentor in other projects.

Required assignments for the class include:

- writing a resumé,
- making a presentation on the career area being investigated,
- completing a project based on the mentorship experience (may be combined with the presentation),
- submitting three written interviews, and
- maintaining a personal log.

Grades are based on:

- successful mentorship evaluation,
- participation in seminar sessions,
- individual student presentation, and
- outside assignments, projects, or log.

What is a mentor?

A mentor is one who participates in a particular tradition, discipline, profession, or craft and who serves as a role model, teacher, and guide to those who seek access to the mentor's world and skills. The mentor provides a model of competency, exploration, and commitment to a field or discipline. There are no set rules, especially since the mentor plays such a highly individualized educational role. In general, however, the mentor:

- has a special skill, interest, or activity which engages the learner's interest,
- is able to guide the learner toward personally rewarding experiences where challenges can be met, skills developed, problems solved, and relationships established,
- is often a role model for the learner, sharing a life style and attitude different from those the student might ordinarily meet,
- is, above all, interested in the student as a learner and as an individual.

Mentors can provide the following types of experiences for students:

- insights into the practical aspects of the profession,
- mundane, as well as exciting activities,
- introductions to other professionals in the same or a related career field,
- information on professional organizations, professional publications, licensing requirements, etc., and
- college or career recommendations.

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Mentor/Apprentices Relationship

The purpose of the Professional Apprenticeship Program is to provide direct contact between gifted students and professionals in shared areas of interest. The program is developed as a mentorship program which matches eleventh and twelfth grade students with an adult who is an expert in a professional field or has a special skill.

The student and mentor draw up a mutually agreeable contract describing the activities in which the student will participate. Mentors provide as much hands-on experience as possible, giving students a view of all phases of the career, including routine tasks, as well as creative and challenging opportunities. Monitoring and evaluating the contract arrangement is the responsibility of the gifted program resource teacher.

Student Selection

All students identified in the program for intellectually gifted may not be eligible to participate in the course. Transportation and liability restrict the enrollment to eleventh and twelfth grade students. Students are selected on the basis of classroom performance, grade point average, attendance record, maturity, proficiency in decision making, demonstrated responsibility, physical presentation, and verbal skills. The student may not be sure he "wants to be a neurosurgeon" but he must be sure he "wants to explore seriously the job." Students are encouraged to explore nontraditional professions and expand career exploration. Each applicant must be interviewed by the resource teacher.

Role of the Resource Teacher

During the interview with the resource teacher, the student answers questions about commitment to the career and general knowledge of the tasks performed by the professional. The resource teacher watches out for possible extracurricular activities which might interfere with mentor

time. Students have problems with mentor hours when the mentor works nine to five and the student is in school seven to two-thirty. Parents are cautioned, at the first seminar class, to encourage and support, but not push, children into careers. They must tolerate some flexibility in their child's regular schedule.

Resource teachers in each high school are involved in the seminars, interviews, and conferences. Class enrollment has varied from twenty-five to fifty. Grades are issued with the regular nine-week grading reports.

Students have some flexibility in working the seventy-five hours, but some things are required. Students must prepare for their first mentor contact and learn to work with office bureaucracy. They must attend the seminar classes, which include:

- parent/student orientation,
- resumé writing,
- presentation skills and preparation,
- stress reduction,
- future outlook for jobs,
- interview techniques,
- sex role stereotyping, and
- student presentations.

Required interviews of other people in the same profession force students to expand their outlook and career/training information.

Scheduling time and working with the mentor is the main focus of the course. Students sometimes get released from school to attend a convention for psychologists, observe knee surgery, participate in field work with environmental engineers, visit NASA experiments or sit on the bench with a judge. All of these experiences are recorded in a personal log of descriptions of activities and reactions or emotions which came about as a result of the activities. Reading the log is a wonderful way for the resource teacher to experience vicariously all the excitement and energy of the students. Student presentations on the mentor experience provides exciting information to all participants in the class.

The lessons learned from Professional Apprenticeship often include, "I don't want to continue in this profession." The value of not continuing a job which has been a childhood dream is enormous. Often early commitment forces people to continue unsatisfying careers.

Benefits

All participants benefit from this program. The students are exposed to the realities of the specific career studied. It is also beneficial whether the experience reinforces or negates the student's career aspirations. For some students the mentorship experience develops into fulltime summer employment.

Each student in the program maintains a log. The following statements, taken from logs, describe the benefits received by the students. From the log of Christine Hennessey, who was working with a veterinarian, "Today I watched Dr. Evans set an animal's broken leg. It was amazing to watch not only his skill but also to observe the compassion and warmth he exhibited for the animal and the family." From this experience Christine was able to obtain summer employment in Dr. Evan's office.

The mentors also gain much satisfaction from having the opportunity to be a positive influence in a student's life. As one surgeon stated, "My student's ideas were fresh and his energy invigorating. The future of medicine depends on developing our young people's desire to heal. It was a wonderful experience for me."

As Bruce G. Milne has stated,

"We must realize that gifted and talented persons do not accept careers, they create them. They synthesize and transfer known processes into new dimensions. Through them others will find careers in yet unknown and undeveloped fields."

ment and exploration skills. Focusing, problem solving, decision making, and a need to test reality can be learned as adolescents. Young adults must focus on job-creation skills, an ability to project into the future, and other adaptive strategies which help synthesize multiple abilities and interests.

Choosing a career that requires advanced and/or extensive training involves emotional maturity and long-term career investments. There is a fiscal, temporal, and personal investment in the career preparation program through diverse classroom and community activities. Students must be offered a "preview" of some of the difficulties they might face in the exploration and decision-making process. Adequate program planning, mentorships, exploration of alternative careers, guidance programs, parental concern, community concern and support are important to assist students.

Conflict between others' expectations and the gifted student's own personal goals can be the result of expectations which are too high or too low. Understanding and/or reaching a compromise of parental, societal, and personal goals can be realized through a carefully planned, sequential, and developmental career education/guidance program. If societal expectations are not addressed, a career that merely satisfies others might be chosen.

Other career-related concerns specific to gifted students have been delineated by writers whose research lists the following:

- Many gifted individuals tend to view lifestyle and work as a means of self-expression.
- Social isolation may result when gifted students' interests are different from those of their peers.
- Few adult role models are available for gifted students in their area of career interests, abilities, and/or talents.
- Problems faced by women in our society have a major impact on the gifted female.
- An erroneous assumption is held by many that the gifted can be anything they desire to be.
- Premature commitment to a career choice based on school subjects in which the student excels can result in the individual's becoming a perpetual student.
- There is a conflict between the pursuit of excellence and the desire to fit in and be accepted.
- Changes may occur in both the individual

and in the nature of work during a period of extended preparation.

Components of a Career Development Program

Career development is seen as a lifelong process. It is predicted that youngsters will change careers at least four times, and jobs at least seven times in their lifetimes. There are four generally recognized stages in career development:

- Step I: Career awareness during early childhood
- Step II: Career exploration during the middle school years
- Step III: Career preparation during high school
- Step IV: Career placement, follow-up, and continuing education after high school and throughout life

Research in career development for gifted students suggests the importance of the following components:

- opportunities for awareness and understanding of interests and abilities
- opportunities for direct experience and interaction with individuals in the community in order to test interests and skills and to pursue interests
- role models from a broad range of professions to provide information and opportunities to explore lifestyles of individuals who have multiple talents and who lead successful and satisfying lives
- opportunities to discuss experiences and to develop creative thinking and problem-solving skills
- opportunities to explore self-concept, values, and the implications of multi-potentiality for job satisfaction
- extensive opportunities for study of the organization of occupations and of career settings
- opportunities for individual guidance and counseling
- opportunities for the analysis of professional lifestyles, goals, values, and ethics
- opportunities for the involvement of parents, whose support and encouragement is critical.

Ongoing evaluation of student progress in learning the career decision-making process is important. Experiencing a developmental career program will equip students with techniques for life. Assessment must be a continu-

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ous, ongoing process that chronicles development. Experiences, information, and data can be organized into a career portfolio that gives a student responsibility for his or her learning. Thus students practice self-evaluation and accept the responsibility for assessing self-knowledge, setting goals, and assuming responsibility for their own future growth. By assuming this ownership for learning, students document the steps and activities of practicing career development.

While the literature reveals one basic career counseling model, a variety of techniques for delivery of the program is essential. A creative teacher/counselor will challenge students to utilize resources and practice a career development process which can be utilized throughout life. More research and program development become necessary as the myriad of choices and opportunities grow. It is important that these be comprehensive, developmental programs that enhance the existing curriculum in schools and communities.

The following compilation of articles reflects practices in gifted education in the Commonwealth of Virginia. It is hoped that the ideas contained in these might generate other creative programs or be replicated by educators of the gifted throughout the country.

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Gifted Students and the Technical Arts

Excerpted from *Gifted Students and the Technical Arts*, Commonwealth of Virginia, Department of Education, Richmond, VA 23216, 1988.

The Commonwealth of Virginia is developing a new concept of providing superior and innovative opportunities for students identified as gifted in the technical arts and for other students gifted in academics or the arts. The concept, called *Gifted Students and the Technical Arts*, unites the three vital areas of Vocational Education, Programs for the Gifted, and Career Education and Guidance. This dynamic partnership may well become a model for estab-

lishing differentiated programs and curricula for a unique, yet often underserved, segment of the student population.

Gifted Students and the Technical Arts is an initiative designed to increase educational opportunities for gifted students and provide them with expanded options and flexibility in developing their superior creative abilities and in exploring potential careers. The partnership has identified five goals for the initiative:

- To encourage students gifted in any area to pursue offerings in vocational education as a means of expanding their abilities
- To provide gifted vocational students with differentiated career development opportunities, courses, and programs commensurate with their superior abilities
- To develop new course designs for gifted students
- To present gifted students with more information and experience about potential careers
- To eliminate artificial distinctions and unnecessary barriers between vocational and general education.

In short, the concept hopes to link students gifted in any area with the possibilities afforded by vocational education.

Basic Approaches

Differentiated education for gifted students is not a new idea. *Gifted Students and Technical Arts* does, however, break new ground by building on the existing framework of differentiated education in the following ways:

1. It emphasizes and encourages vocational education for all gifted students who can benefit from vocational offerings.
2. It provides for a concerted movement involving all three partners to identify students gifted in the technical arts.
3. It proposes educational challenges equal to the abilities of the identified students.
4. It represents a commitment on the part of all partners to channel their considerable resources into an integrated plan that will allow school divisions across the state to develop and maintain differentiated curriculum for gifted students.
5. It taps student abilities and capabilities that may have been neglected heretofore.
6. It recognizes the individual learning styles of students and matches them with learning environments appropriate for nurture and growth.

7. It provides an arena for application of theoretical knowledge gained from academically oriented classes.
8. It offers opportunities for motivating and developing the potential of underachieving students.

The Challenge

The combinations and the possibilities for student development are endless, limited only by the imagination of educators formulating programs, courses, and opportunities for gifted students. The responsibility for success in this endeavor, however, is equally divided among the three partners. Personnel from the areas of Vocational Education, Programs for the Gifted, and Career Education and Guidance must work together in all aspects of the initiative: planning the initiative locally; securing adequate funding; training needed personnel; screening and identifying gifted students; devising the programs, courses, and opportunities; providing career information and exploration; and evaluating the results.

Benefits for Students

Students benefit by:

- receiving systematic and on-going career development
- possibly developing new career interests and, at the same time, learning what they are not interested in pursuing
- learning to avoid the all-too-often encountered academic boredom that results from lack of challenge
- finding creative outlets for their ideas and skills
- developing a fuller awareness of self
- developing specific career-related competencies
- gaining satisfaction from putting their knowledge and skills to practical use in challenging situations
- making important contacts outside the school, which could have the added benefit of increasing employment opportunities
- having a chance to develop career-related attitudes that contribute to a greater sense of social and occupational responsibility
- having the opportunity to work with other gifted individuals in both school and work environments
- gaining understanding of their own giftedness and developing a keener perspective on their gifts in relation to those of others.

Exemplary Programs that Utilize the Partnership Approach

Elementary Architecture

by Ann R. Erickson, Art Resource Teacher,
Fairfax County, VA

Activities for an elementary program of architecture were organized to present a coherent, cumulative series of experiences. Introductory activities that do not require specialized vocabulary are introduced in kindergarten, first, and second grades. Generalizations in the early grades become more specific as the vocabulary increases and topics become more abstract.

Many environments are introduced K-1, including home, school, and neighborhood.

In second grade, the bigger, commercial and institutional environment of the community is compared to private spaces. Significant architectural structures are investigated.

Fourth graders learn about the environment their forefathers studied. Important architectural structures are examined as well as the concepts of city planning, in-depth study of planned communities.

American architecture is the focus of the fifth grade curriculum.

Sixth graders study the environments of the past cultures of Egypt, Greece, and Rome. Castles of the Middle Ages, Gothic cathedrals, Renaissance palaces, and monuments are investigated.

Because architecture is a blend of art and science, it is one of the most integrative of subject matters. Emphasis has been placed on using architecture as an integrative tool. The beauty of architecture is that it incorporates many disciplines and represents them in concrete form. Architecture is the marriage of the material world and the world of ideas. All the experiences in the architecture program were designed to enhance the existing elementary school curriculum.

Success means only doing what you
do well, and letting someone else do
the rest.

Goldstein's Truism

Technology Education

by Dr. John Turner, Associate Professor,
Old Dominion University

Technical aspects of computer technology, (i.e., operating and interfacing computers with other technologies), operating systems, programming languages, artificial intelligence, and information systems are addressed under this program. Cultural, social, economic, and political implications of this technology are an integral part of the course. These concepts and technologies are examined in the context of communication, production, and transportation technologies to simulate real-world, problem-solving challenges. A computing systems course focuses on applying mathematics, science, and writing skills in the problem-solving process, making it an interdisciplinary course.

Robotics and Computer Aided Design (CAD)

by Mary Burton, Vocational Director,
Fredericksburg City Schools

CAD equipment, loaned by computer companies, is used for "hands on" training on industrial robots. Field trips are taken to related industries. NASA and the University of Virginia provide labs to learn about careers and observe model programs in operation. Teachers receive intensive inservice from business and industry in new concepts and the use of high tech equipment. Gifted students have broadened their skills through application of academic concepts and those interested in the vocational/technical areas will be able to make better career choices.

Gifted Child Development and Guidance

by Phyllis Cannon, Coordinator, Home Economics, Virginia Beach City Public Schools

A curriculum guide introduces the philosophies of theorists, including

Jean Piaget, Erik Erikson, Lawrence Kohlberg, H. Ginsburg, Erika Stone, Maria Montessori, and the British Infant School. Students synthesize the ideas of these theorists for determining effective guidance techniques and learning about the total child. Critical thinking activities are encouraged as growth patterns in intellectual, physical, social, and emotional development are analyzed.

Careers skills and opportunities are explored. Field trips to medical establishments and other child-related businesses enrich the learning experiences. Students present special programs on career awareness to elementary school children.

A highlight of the program is a student-planned and -prepared pre-school experience in the classroom. Lessons are planned with a concentration on each of the four developmental tasks. Learning centers and educational manipulatives are created by the students to provide an enhancement to the lessons. Students teach and observe patterns and behaviors and problems as they focus on the total development of the child. The concluding class event is the mentorship/apprenticeship experience to explore areas of related interests. Observation and work with professionals in the community provide time to assess selected child development careers. Professionals include pediatricians, pediatric staff from local hospitals, play and art therapists, and preschool and elementary school teachers.

International Marketing

by Dr. John Turner, Associate Professor,
Old Dominion University

This one-semester elective course is intended for academically advanced students in their junior and senior years. Students are selected on the basis of academic achievement and their expressed interest in pursuing further education and/or possible employment in international trade and marketing.

Summer Institutes

by Steve Straight, Assistant Principal,
Massanutten Technical Center

Area vocational schools offer enrichment and exploration. Architectural Considerations, Aerospace Technology, Automotive Technology, Creative Computing, Culinary Science, Drafting and Computer Design, Engineering, Health Occupations, High Tech Art, Technical Metals, Air Brush and Calligraphy, Cosmetology, Culinary Science, and Welding were offered to middle and high school students. Hands-on experiences and opportunities to apply learning from academic programs were provided in:

- drafting using the autoCAD system, then building a model of a dream house;
- printing and assembling a printed circuit board;
- exploring aerodynamics, design, and thrust for the metric-500 balsa car design and race project, bridge building, and stress design projects in engineering;
- exploring leisure time activities, as well as careers, in photography and crafts; welding, painting, and assembling projects; and wood working skills to create and assemble a "wood picture."

Teen manners, etiquette and fashion modeling were additional offerings by local department stores and a private modeling agency. Dining, correspondence, introductions and conversation, peer-group relations, poise, posture, and appearance classes culminated in a fashion show.

Introduction to aviation, introduction to law enforcement, and TV production and broadcasting will be added to course offerings as a result of requests from students and parents.

The shortest way to do many things is to do only one thing at a time.

Richard Cecil

- Humans are endowed with abilities which allow them to take an active part in society and contribute to it. Humans must discover their own abilities, develop them, and find the occupations in which they can best achieve self-fulfillment, satisfaction in the work setting, and happiness in life.
- Unless work satisfaction is attained, an individual's fulfillment and happiness cannot be achieved. Work satisfaction depends greatly on the person's ability to determine an occupation consistent with the needs of his or her personality, interests, aspirations, and available physical resources.
- Career Guidance involves the processes of self-analysis, occupational analysis, occupational tryout, and occupational placement and follow-up. This is an independent professional study. Through the first three processes, students seek and cultivate their natural abilities and find a suitable occupation after graduation. Through cooperation with business and industry, schools conduct placement and follow-up activities to help students as they continue to develop their skills and find satisfaction in their work.
- Appropriate career guidance can be the force which will put the brakes on the proliferation of social welfare programs which currently hamstring society.

Job Satisfaction

The basic premise upon which the COPP rests is that unless satisfaction is derived from one's work, an individual cannot achieve self-fulfillment. Consequently, the individual cannot achieve true happiness. Work satisfaction is best attained when the individual learns how to make the occupational choice that is most effective for that person at that time. The COPP is a way to help the individual perceive the work world and make career decisions through the perspective of expressing one's personal attributes through work, and using one's work to develop personal attributes.

The COPP helps students appraise three abilities needed to choose an occupation that is suitable to them. In this activity students:

1. perceive and analyze themselves, certain of their personality traits and interests, and the skills they possess;
2. appraise occupational requirements and opportunities which would capture their interests; and

3. obtain exploratory work-like experiences and learn from them.

Those persons who are considered gifted with special academic, creative, leadership, or psychomotor talents, and those with talents in the visual, mechanical, and performing arts, are encouraged to select school programs and out-of-school activities that develop their talents. Schools are encouraged to incorporate learning experiences that capitalize on each student's talents. In the career planning process, gifted and talented students are encouraged to explore their talents as they plan careers that are suitable for them, and to seek self-fulfillment through the use of their talents.

Internalization of Past Experiences

Form A of the COPP instrument asks students to tally the number of times they have performed certain work-like experiences over the past three years. It asks them to place a subjective value on the degree of satisfaction they derived from the performance of these activities. Form A provides a structure for recording these work-like activities which it calls *Occupational Tryouts*. This structure organizes the activities into sixteen broad categories. For example, *Category A* is titled: *Grew Agricultural Products*. This category lists four areas of activity related to growing agricultural products: vegetables, fruits, flowers, and other plants. The structure provides for activities that are performed in school, as part of a school program, or as a curricular activity (e.g. the elementary school pupils who may have the responsibility for keeping the classroom plants watered). Students can also perform work-like activities outside school, as chores and tasks around the home, as hobbies, or as part of the activities performed on a job which is compensated with a pay check.

As students record their past activities in each of the pertinent categories and subcategories, they develop a sense of attraction to some and not to others. This identification of attractiveness of certain activities becomes internalized. As individuals we soon learn to seek out certain activities and avoid others. This individual reaction towards various areas of activity is a key factor in the person's learning style and in occupational selection.

One of the most significant contributions of the COPP is this appraisal of the number of instances and degree of satisfaction obtained from the individual's past work-like activities.

Those working with gifted students will be especially attracted to this aspect of the *COPP*. The *COPP* places high value on past activities for future planning: for educational, career training, and personal development purposes. The *COPP* recognizes that past activities and the satisfaction derived from them, shape our present and future lives. The *COPP* encourages counselors, teachers, and clients to focus on the way past activities are integrated into the total personality and influence us to establish our individuality. As those with special talents are aware, this recognition of individuality is not exclusively an intellectual process. Only a few students arrive at this insight through reading or discussions with others. Most learn through doing.

Dr. Fukuyama has compared this use of past work-like experiences in making career decisions to that of deciding if one likes a particular kind of cake. Tasting the cake results in the accumulation, personal interpretation, and storage of data which are called upon subconsciously when the opportunity presents itself to try a similar piece of cake at a later date. Personal interpretation of the data from the first experience of the cake has found its place within the human value system and has established a personal predisposition towards or against the acceptance of a similar piece of cake at a future time. This dynamic of the human person is reflected in the phrase: One does not argue *over tastes*. In like manner, students accumulate data from their past experiences of specific work-like activities. As they receive each experience into their organisms, they give them a personal interpretation, and store this data and its interpretation. As they gain new experiences, they repeat this process and integrate the interpretation from their most recent experience with interpretations from their past experiences. This integration of past work-like experiences is a subconscious process which results in a personal predisposition towards or against similar occupational experiences in the future. Dr. Fukuyama recommends that each student acquire at least three *tryout* experiences from each of the several occupational areas. The more *tryouts*, the greater will be the degree of confidence the student has in making a decision about that area.

Convergence — Divergence

A second significant contribution of the *COPP* to the development and education of the

gifted and talented lies in the process of career planning that the *COPP* stimulates. Most current commercial career assessment instruments focus on a movement towards *convergence* as a career planning process. For example, the major focus of interest inventories is one of comparing the expressed interest pattern of the person surveyed with the general patterns of interests among several groups of workers in various occupations or occupational areas. In considering these comparisons of the individual with a group of workers, the interest inventory reports the group of workers whose interests are most like the individual's surveyed interest pattern. Often there is an expressed suggestion that the individual surveyed might consider a career in the occupational area whose workers have patterns of interests closest to those of the individual. This describes a career decision-making process that is one of *convergence*. The process is one of narrowing one's considerations to those occupations that compare most closely to the person's measured pattern of interests. The decision-making process is one of screening out those occupations that do not fit one's measured interest pattern.

In most career decision-making programs, the same dynamics occur whether one uses interest or values inventories or aptitude tests as the basis for collecting data about the individual. The processes involved in the education of the gifted and talented are remarkably similar. Too often gifted students find they are expected to fit the established pattern that seems to have been of benefit to the greater majority of students. That pattern is also one of *convergence*. Gifted students are frequently and naturally divergent in their perspectives towards the areas of their talents. Their giftedness often calls their attention to the many divergent opinions around them, to the different ways of learning and doing things, and to feelings and insights that differ from those around them. This need for *divergence* in their lives frequently places the gifted student at odds with the expectations of the school routines. The *COPP* seems made for the way the gifted view their talents. It offers them a career planning process that fits the way they seek their own fulfillment.

In this last point, the needs of the gifted are not much different from those of the majority of students. *Divergence* is an important factor in educating all students, but the gifted and talented display their need more openly. In the

career development stages of students in junior and senior high schools, divergence is more important than convergence. All students need to explore many different types of careers, and in different ways. To encourage convergence too soon in an adolescent's life works against the needs of that student's developmental stage. This is the beauty of the COPP: it not only allows for divergence, it encourages it.

It leads students in two ways. First, it recognizes that students do not possess fully developed knowledge of self or of occupations, and that the measurement of these items are not stable. In this respect, the COPP tells students, *"Here are the results of what you expressed on this instrument. Your traits and skills are not yet stable. You can enhance any of your skills or change any of your traits."* Second, the COPP encourages exploration of many different kinds of occupations before converging to a few. In this respect it tells students, *"Your traits and skills, and your knowledge of the occupation of your interest differ from the traits and skills required by that occupation. Perhaps you should consider ways to increase or improve your knowledge of the occupation, or strengthen your traits and skills."* In this way the COPP helps students learn a career planning process that is characterized by accurate knowledge of oneself and of occupations of interest to the student. It encourages students to try out various activities of interest that may have occupational meaning. Students learn by doing.

In the hands of a counselor or teacher who possesses the understanding and skills appropriate for working with gifted students, the COPP can become one of the most important and meaningful components in career planning for gifted students, perhaps the most significant of the entire school experience. The COPP doesn't compete with, or try to replace, other career assessment instruments. It can, and will, make them more meaningful to the person involved in the career planning process. However, because it is a blueprint for the career planning process, it can also stand alone. Its major task is to teach students the career planning process, and it does this well.

Studies in Japan, China, Europe, and Hawaii point to a definite value of the COPP to teach students occupational information in a personally meaningful way. Gifted students will find that the COPP responds to their need for recognition of their individual differences.

The benefits of an occupational focus for gifted students in developing their areas of talent, their subsequent selection of school courses, and their future occupational preparation has been demonstrated. The way gifted students learn and perform and the career planning process of the COPP are a nearly perfect match. The value of the COPP to the gifted and talented, and to all students in our schools, will be demonstrated as today's students move into broader and more responsible roles in our American workforce. That value will be one of ensuring a high quality workforce, offering to our nation the many and diverse talents which our nation will need in the future.

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James V. Carr, PhD is the Vocational Guidance Consultant for the New Hampshire State Department of Education. He is currently the President of the National Consortium of State Career Guidance Supervisors.

Information about the Career Orientation and Planning Profile can be obtained from the Career Guidance Supervisor in most State Departments of Education, or from Dr. Carr at the New Hampshire Department of Education, 101 Pleasant Street, Concord, NH 03301; 603/ 271-2452.

TIES Magazine

TIES (Technology, Innovation, and Entrepreneurship for Students) is published by the Design Center at Drexel University. Subscriptions for teachers are sponsored (no cost), and cost \$15.00 for all others. TIES is used primarily by middle and high school teachers of science, math, art, and gifted and talented. It includes design and technology education across the disciplines.

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Sixth Graders Transform Art into Billboards and Exhibit their Art in the Community

by Dianne Turner

Artists' careers often thrive on the recognition which their work receives from the public. Support from the artist's community can illuminate work which is worthy of recognition and bring attention to its importance in society. When teaching art to children the role of support and recognition for artists is usually overlooked.

Recognition for an artist's work, more often than not, is the result of an exhibition in the community. The exhibition of artwork itself can be considered a part of the experience of art. Obtaining space for an exhibition is not always an easy task for artists. The publicity and funding for an exhibition often requires solicitation of help from the artist's community.

Often the exhibition becomes part of the art work itself, as art critic Judith Barry describes:

Considered as a product, an exhibition is substantially and materially different from a work of art. Since an exhibition is temporary, difficult to represent in two-dimensional form, generally not portable, different from the sum of its parts, expensive to produce, not collectable, and definitely not a commodity, it violates most of the tenets of the marketplace or art history and criticism.

Dianne Turner, DEd, is an art educator at California State University at Bakersfield.

Bryan Berg is the classroom teacher who was involved in this project,

When teaching about art and its role in society, many art educators rarely mention an art exhibition as an important part of the artistic process. Art educators may introduce an exhibition of artists' work, but rarely is an exhibition included as an integral part of the art lesson covering the objectives of an exhibition and its meaning to the students themselves. *The Handbook for Planning an Effective Visual and Performing Arts Program* (1990) for California public schools states that including student exhibits is essential for the "ideal" program.

A study of art teachers' attitudes and beliefs about children's art exhibitions (Turner, 1989) showed that art teachers believe they received recognition for their art programs after an exhibition of their students' art work. The study also revealed that art teachers felt that students learn about other students' art work by viewing exhibitions of student work. Typically students at the elementary level are left out of the planning process of exhibiting their artwork.

Recently a project involving students designing their own public exhibition of art took place in Bakersfield, California. Sixth graders at an elementary school held an exhibition of their original art work on five billboards posted down a main street in their town. The project developed into a study by a university art educator in cooperation with a sixth-grade classroom teacher about children's participation in a community exhibition of their art work. The project involved working with one class of 31 sixth graders. In general the study explored whether or not children were able to teach their peers and communicate to one another about art. As part of the project, the children studied the role of the exhibition for artists. A series of lessons informed the students about artists and billboard design. The lesson on exhibitions included the artists' need for the support of their community and the public's positive reaction in order to judge the success of their art work. In addition the children were introduced to the role of billboard advertising.

There were several learning objectives:

- Learn about the importance to the artist of exhibiting art in the community.





- Learn about the artists Salvador Dali and M. C. Escher, and how some of their images transform into other images.
- Learn about the relationship of a picture to a caption.
- Learn how to teach each other and work cooperatively in a group to design an original piece of art work.

Students studied the role of the exhibition by viewing pictures of famous exhibitions of adult art and hearing of the exhibitions' impact on how society viewed art. Children learned about Dali and Escher's work. They then viewed

a series of slides of various billboards with other children's artwork and discussed the role of advertising on billboards in their town.

After the motivation of viewing various art works and discussing them, students were given three pieces of 8.5 by 11 inch paper and asked to make a design that transformed an animal into a nonliving object in just the three pieces of paper. (Three pieces of paper were used because billboard signs are composed of three large pieces.)

The children were divided into five groups to design their boards. Each group voted and chose one drawing, or parts of a drawing, from their group that they wanted to have drawn on their billboard. Next each group of children drew their images onto the billboard paper and colored them in crayon. This process was broken up into a period of three weeks. Each week covered one panel of the billboard. Children were given about an hour each week to work on the billboard panels. The students who demonstrated a strong interest for art both led and cooperated with those who were more conceptually oriented in the class during the creation of the boards. Often, the groups of students would take it upon themselves to direct each other.

When the drawings were completed the children were asked to create a slogan for each one of their billboards. The slogan had to reflect the design of the billboard drawing.

The completion of the billboards provided some interesting results in terms of design. When the billboards were posted in April there were five different designs with slogans. These included:

- 1) A snake turning into a saxophone reading, "Upscale Art...Stockdale Elementary"
- 2) A shark turning into a hamburger reading "Take a Bite out of Art...Stockdale Elementary"
- 3) A wolf turning into a VCR reading "Leading the Pack at Stockdale Elementary"
- 4) A fish turning into a light bulb reading "Plug into Art with Stockdale Elementary"
- 5) A snake turning into a TV set reading "Primetime Art at Stockdale Elementary"

The lesson in itself was a success because of all the support and reaction the sixth graders' billboards received during the 2-4 weeks that the billboards were posted. Support included the initial donation for five 5 x 10 ft billboards from a local billboard company in Bakersfield (Martin Outdoor Advertising). Positive reac-

tion to the billboards was received from many sources in the community, including the mayor of Bakersfield, a local television station's coverage, the President of California State University at Bakersfield (CSUB), the faculty of the Teacher Education Department at CSUB, the children themselves, and their parents and school administrators.

This project involved participation and cooperation from many individuals in the school district as well as the community. This factor contributed to the children's understanding of the exhibition process for the artist.

Were the children able to teach each other about their art through the design of billboards? The research study indicated that children are able to teach one another about art and take their artistic experiences with their peers outside the classroom. This was demonstrated by the number of positive responses received from the researcher meeting with the parents and children regarding their feelings toward the billboards. During the design process students were very much interested in each other's designs and took into account suggestions from others for their own design. Cooperatively they were dependent on each others' sense of design.

Exhibitions of adult art are common and often displayed in many forms throughout our society. Art educators strive to teach children about art and its role in society. Often in the process of teaching art, the role of the exhibition for the artist is neglected as part of the study of art for children. This project proved to be successful in that it taught children what it is like to exhibit their work in the community and to have public reaction to it and also how to view and appreciate art exhibitions.

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"Restructuring" Produces a Powerful GATE Program

by Nancy Howard

At Tierrasanta Elementary School in San Diego Unified School District, we believe that we have an outstanding GATE program. Where some GATE classes have fallen by the wayside, ours have expanded and excelled. How have we achieved this over the last three years? Changes have occurred through the process of "restructuring". At Tierrasanta School this meant a new joint decision-making procedure involving parents, and certified and classified staff.

Restructuring opened the doors for new leadership, innovative thinking and a new way of working together. This site-based management approach allowed for:

1. the development of leadership skills in key teachers, both GATE and regular;
2. time for staff development days when GATE teachers could share their expertise, (i.e. instructional techniques and strategies) with our regular teachers;
3. opportunity for parents of GATE and regular students to participate in curriculum goal setting for the total school; and
4. the development of a major project, our science lab, which galvanized the staff and focused everyone on a common goal.

One of the most important ingredients was the "mutual sharing" which occurred among staff members. This sharing counteracted any jealousy or negativity which can be found in some schools with a variety of competing programs. Our GATE teachers often act as mentors, modeling for other teachers and sharing their materials. GATE funds are allocated to cluster classes but resources are often reused with regular classes.

Parent volunteers are also shared. We have many GATE parents who volunteer, but we have as many non-GATE volunteers in our regular classes—a cadre of over 200 volunteers in our school.

A strong sense of regular and GATE staff working together is apparent in the Family Math Night, a family workshop delivered by a team of GATE and regular instructors, both parents and teachers. This popular family workshop is offered several times during the

year to any family wishing to participate.

Our Governance Team (Restructuring Committee) comprised of GATE and regular teachers, staff, and parents plans four staff development days per year. These non-instructional days, approved by 94% of our parents, are very successful in building interpersonal skills and in setting our annual goals. The developing leadership skills of several teachers, both GATE and non-GATE, has been apparent. Teaching techniques, improved teaching strategies, and new curricular ideas have been presented and put into practice by our energetic, emerging leaders. This approach has dissolved barriers between programs. The result is that all of our students benefit from GATE strategies. Our five classes provide a qualitatively different program for a large number of students. Many of our regular Grade 3-5 classes are emulating the kind of environment found in our GATE classes. This environment includes a focus on students' ideas and interests rather than just those of the teacher. The focus is on encouragement of student initiative and having students solve their own problems. There is an emphasis on permitting new ideas and on exploratory discussions. In all our GATE classes one will see challenging tasks and sophisticated methods. Restructuring has helped to foster a school climate where risks can be taken, and new ideas tried by both student and teacher.

Our Grade 3-5 GATE program involves five cluster classes taught by certified GATE instructors. Each class is heterogeneous, with a make-up of 75-80% GATE identified children. The remaining 20-25% are high achievers.

Our cluster classes allow for individual teaching. Restructuring has paved the way for our GATE program to excel. Its success can be rated not just by our high ASAT scores but also by the enthusiastic acceptance of our cluster classes by our staff and community.

One very successful program is cross-age tutoring between a Grade 5 GATE class and a kindergarten room. Daily, a group of 5 or 6 upper graders visits the kindergarten class, where they work on an individual basis in language arts. Both groups of students benefit. GATE students develop more self-confidence and a stronger sense of social responsibility.

Goal setting for any school is very important. For a restructured school with high staff and parent participation, goal setting is a para-

mount force in uniting the key players. One of our main goals over the past two years has been to reinforce and expand our science program through a Grade 1-5 science lab. This has been a united effort coordinated by one of our GATE teachers. A science committee of teachers and parents steered us in the right direction for achieving greater student interest in science. Our parents have supported us financially through the PTA by funding materials and personnel for our lab. Focusing on our science goal has brought rich rewards for all of our students and strengthened our instructional program.

Part of our restructuring efforts for our GATE program has been directed toward the goal of increasing the diversity in our GATE classes. We have been successful over the last two years at identifying culturally and linguistically diverse students. Our GATE classes have about 30% non-Anglo children in their classes. In assigning non-GATE children to cluster classes, we are sensitive to the needs of regular classroom teachers. We aim at assigning strong average to above-average children to GATE classes. Our goal is to have well-balanced classes in both our GATE and regular classes. This is well received by all teachers and allows high average children to remain in the regular program. We have a GATE program that offers a dynamic curriculum overseen by skilled teachers who excel in promoting it. The commitment of the site administrator is vital. As the major public relations officer for my school, I see my role as pivotal in promoting our GATE program to parents, to my staff, and to the community. Restructuring has provided many opportunities where a principal can model and be the influential instructional leader.

Strengthening our GATE program has brought many benefits for the total school. We hold true to our school motto,

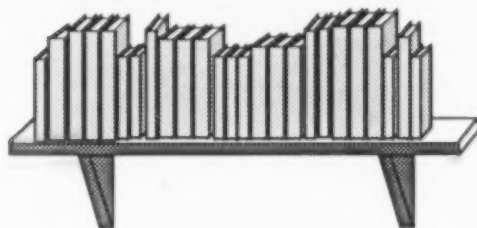
Together we are all winners.

To love what you do,
and to feel that it matters –
how could anything
be more fun?

Katharine Graham,
Editor of the Washington Post

Nancy Howard is the principal at Tierrasanta Elementary (K-5) School in San Diego Unified School District. She may be reached at the school, 5450 La Cuesta Dr., San Diego, CA 92123; 619/292-0712.

THE BOOK SHELF



Kid Stories: Biographies of 20 Young People You'd Like to Know

by Jim Delisle

Reviewed by Margaret Gosfield, GATE Specialist, Ventura Unified School District

Kid Stories is a very readable collection of biographical sketches describing real-life contemporary kids, ages 8-20. The stories contain a number of themes including problems of social acceptance, of requiring alternative education modes, of overcoming disabilities or life crises, and of standing up for personal convictions.

Each story follows a format that at first glance appears to be of a "cookbook" nature with sections on *Family Background*, *Making a Difference*, *Lessons Learned*, *Personal Goals*, and *Global Concerns*. But the characters and their stories are so diverse that they hold your interest. Kids can relate to these young story tellers as they experience similar challenges of growing up.

Examples include Melissa Hinajosa, who turned down the chance to be in the eighth-grade prom court because she refused to take a packet she thought might contain drugs from the class bully. Chad Knauer is both gifted and learning disabled and must deal with his own need for self-confidence as well as with teachers who don't understand a student with two labels. Wayne Floyd completed most of his high school classes by correspondence because the courses weren't available in his rural Alaska home. Jennifer Engel refused to dissect a frog in biology class and took her case all the way to the school board.

The *Resources* section at the end of each segment provides a valuable addition to the stories. Each one gives references to organizations, books, and activities related to the story's topic. The author does warn that some of the references are out of print, however.

This book would make a good addition to a classroom or school library for kids to discover on their own. It would also be useful to a teacher interested in exploring issues and concerns faced by gifted young people today. It's a book which illustrates that young people can gain inspiration, insight, and encouragement from each other regarding the important challenges of growing up.

Kid Stories: Biographies of 20 Young People You'd Like to Know

Jim Delisle

Free Spirit Publishing

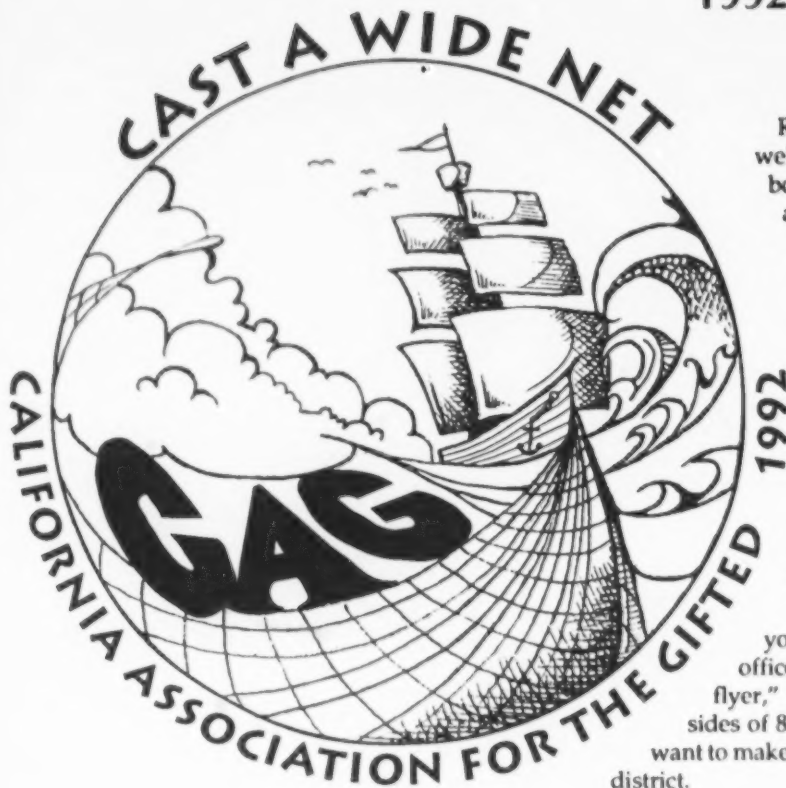
400 First Avenue North, Suite 616
Minneapolis, MN 5540

New AP Document Available

Dave Petty of the Spokane, WA, school district has prepared a manual to provide school personnel, students, and parents with a reference source for Advanced Placement policies in many of the colleges and universities in the United States. The handbook, entitled *College and University Advanced Placement Policies*, covers the various schools' policies for awarding credit or granting advanced placement based on AP examinations. The publication can be ordered from Dave Petty, Washington Council for Honors/Advanced Placement (WCHAP), 200 N. Bernard, Spokane, WA 99201 at a cost of \$10.00. Checks should be made payable to the Washington Council for Honors/Advanced Placement (WCHAP).

1992 Annual Conference

February 21-23
Long Beach, CA



Registration for the conference is progressing well. The youth conference is completely booked, as is the Saturday morning workshop at sea. There are still a few places in the mystery dinner. All other offerings have room, but we would advise you to register soon if you want any options other than the regular conference.

The committee for selecting the workshop presentations met in October. Notification will be sent to those selected (as well as to those who were not) as soon as all sessions are slotted into the program. The tentative schedule, including all workshop presentations, will be mailed to all members and districts around the first of the year.

If you want to register but cannot locate your conference mailer, please call the CAG office for a duplicate. The office also has a "white flyer," which can be easily photocopied on four sides of 8-1/2x14" paper. Call to request one if you want to make large numbers of the flyer available in your district.

Leadership Camps

There will be three leadership camps this year for students in seventh and eighth grades. The first camp is November 8-10 at Point Bonita in the Marin Headlands. The program is completely enrolled with 100 students and a sizable wait list. Similar programs will be offered at Calvin Crest in the Sequoias and at Camp Nawakwa in the San Bernardino Mountains later in the school year. Watch for details in the *Intercom*.

At the Northern camp three full scholarships were granted and a number of partial scholarships, in order to make the camp accessible to all students who wanted to participate - at least the first 100 who registered.

Learning to Learn

A program stressing study skills, college preparation, peer relations, and learning to learn was presented in conjunction with the October CAG Board meeting at the Ramada Renaissance Hotel in Los Angeles. Approximately 120 people, students in grades 7-12 and their parents attended this well-received program. An outreach program is also being planned for the April Board meeting in Oakland.

CAG Student Awards

Purpose:

CAG's Student Award (1991-1992 school year) is intended to assist you, as a GATE student, to excel in an area of interest or achievement such as:

- A. an original project which holds promise for the advancement of learning or contribution to a field of endeavor; or
- B. an instructional opportunity not available within your school district.

Individual awards will be granted in amounts up to \$500. Awards will be announced January 15, 1992.

Eligibility:

You are eligible if you are currently enrolled in a gifted and talented program, and will continue to participate in it for the duration of the instructional opportunity or project for which you are applying. These awards will not be given for post high school work.

Application:

In addition to the application form below, you must submit:

1. Description of the nature and purpose of the proposal (1 page);
2. Statement of proposed expenses (budget);
3. Evidence of commitment to "purpose": autobiographical statements which include examples of achievement and interest (1 page); and
4. Recommendations or letters of support (up to 3).

Mail your complete application by **December 20, 1991** to:

Bruce DeVries, CAG Scholarship Committee
Yokayo School, 790 S. Dora, Ukiah, CA 95482

Selection:

The CAG Scholarship Committee will weigh your application considering equally your proposal, statement of proposed expenses, commitment, and recommendations. CAG reserves the right to validate evidence submitted by any applicant.

Application Form

Please print or type

Student

Name: _____ Age: ____ Grade: ____ Phone: () _____

Address: _____

City, state, and zip code: _____

I hereby apply for a grant to be awarded January 15, 1992. In support of this application I am enclosing the required statements and certify them to be true and correct. I understand that if any information submitted, is determined to be untrue or incorrect, the Committee may reject the application. I also understand and agree that if I am awarded a grant, I will submit an evaluation of the program/project to the CAG Board within two months of completion, and will write about it for the CAG Communicator if requested to do so.

Date: _____ Signature: _____

School

Name of School: _____ District: _____

Address: _____

City, state, and zip code: _____

Teacher/mentor

Teacher's Name: _____ Phone: () _____

I agree to serve as a mentor for this student during the period of this project. I will be available to discuss progress with the student and to be contacted by CAG regarding this award.

Date: _____ Signature: _____

Parent/guardian

Name: _____ Phone: () _____

As this student's parent/guardian I support this application and approve of the proposal.

Date: _____ Signature: _____

For information call Mr. DeVries at (707) 463-5236

Please reproduce and disseminate

Super Saturdays

Discover Art Through Mime

Let Richard Shope – mime, poet, and teacher – help you interpret messages spun from the minds of artists. Learn to recognize the images swirling around your head. Discover your own voice to write about what you see and feel. Together with other students, discuss your ideas and dramatize some of them. Plan to join us for an exciting morning or afternoon in a museum in your area.

Sponsored by the California Association for the Gifted, Mr. Shope, of MIME Media, will provide both morning and afternoon workshops in each city. The cost for participation in a two and one-half hour session is \$6 per person. Adults may also attend the workshop, if accompanied by a student. Tickets may be purchased through the CAG office. Orders for tickets must be **received** one week prior to the event in order to ensure that you will receive the tickets in time. Each workshop is limited to 50 participants. If there is space, tickets will also be on sale on the day of the event at the site, 45 minutes prior to the first session.



Please do not call the museums, as they have not agreed to donate any staff time to answering your phone calls. The museums have agreed to co-sponsor these events by providing complimentary entrance to the museum, and a pass for a follow-up visit by the student and a parent.

November 16	Southwest Museum 11:00 AM - 1:30 PM and 2:00 - 4:30 PM	Los Angeles Grades 4 to 8
December 7	Legion of Honor 10:00 AM - 12:30 PM and 1:00 - 3:30 PM	San Francisco Grades 4 to 8
January 11	Bakersfield Museum of Art 9:00-11:30 AM and 1:00-3:30 PM	Bakersfield Grades 7 to 10
January 18	San Jose Museum of Art 10:00 AM - 12:30 PM and 1:00 - 3:30 PM	San Jose Grades 4 to 8
TBA		Fresno



To order tickets please send a

- check payable to CAG, for \$6 per ticket
- self-addressed stamped envelope
- note containing the following information:
number of tickets, city, and session preference (morning or afternoon)

If the session requested is full, the other session in that city will be substituted.

If you can only attend the particular session requested, please indicate that fact.

Mail to the CAG office.

MEMBERSHIP • APPLICATION

Please share this copy of the *Communicator* with a friend when you have finished reading it. He or she might like to use this form to become a CAG member and active supporter of gifted education. Because of CAG's role in lobbying for appropriate education for gifted and talented students, dues payments to CAG are not tax deductible as charitable contributions for Federal income tax purposes.

Name: _____
Last First Middle Initial

Preferred address: _____
Street address or PO Box

City _____ State _____ Zip code _____

Phones, home: (_____) _____ Work: (_____) _____ Affiliation: _____
(school district of employment or attendance)

Region: _____
 Code: _____

County (not country) _____

Membership/ Service Category: Outside the USA, please add \$5 for increased postage costs.

- ☐ Individual (\$40)
 ☐ Family (\$50)
 ☐ Patron (\$100)
 ☐ Sponsor (\$300)
 ☐ Life (\$500)
 ☐ Benefactor (\$1000)
 ☐ Limited Income (\$15, attach letter)
 ☐ *Communicator* subscription only (\$15)

Role: ☐ Administrator/coordinator ☐ Board of Education member ☐ Consultant
☐ Counselor/psychologist ☐ Parent ☐ Teacher ☐ Other _____

Special Skills/Interests: ☐ Arts ☐ Humanities ☐ Math ☐ Science ☐ Computers ☐ Advocacy/ legislation

Payment enclosed: ☐ Personal check # _____

- ☐ District check # _____ Charge: ☐ Mastercard ☐ Visa Exp. date _____
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